## SPEC CPU®2017 Integer Speed Result

### Hewlett Packard Enterprise

**Test Sponsor:** HPE  
**ProLiant DL345 Gen10 Plus**  
**CPU:** 2.95 GHz, AMD EPYC 75F3

### SPECspeed®2017_int_base = 13.4

<table>
<thead>
<tr>
<th>Test Date: Apr-2021</th>
<th>Hardware Availability: Apr-2021</th>
<th>Software Availability: Mar-2021</th>
</tr>
</thead>
</table>

### CPU2017 License: 3

### Test Sponsor: HPE

### Tested by: HPE

### 600.perlbench_s 32 Threads

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<tr>
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<th>SPECspeed®2017_int_base = 13.4</th>
<th>SPECspeed®2017_int_peak = 13.4</th>
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</thead>
</table>

### SPECspeed®2017_int_base = 13.4

### SPECspeed®2017_int_peak = 13.4

### Hardware

**CPU Name:** AMD EPYC 75F3  
**Max MHz:** 4000  
**Nominal:** 2950  
**Enabled:** 32 cores, 1 chip  
**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:** 256 MB I+D on chip per chip, 32 MB shared / 4 cores  
**Other:** None  
**Memory:** 1 TB (8 x 128 GB 4Rx4 PC4-3200AA-L)  
**Storage:** 1 x 480 GB SAS SSD, RAID 0  
**Other:** None

### Software

**OS:** Ubuntu 20.04.1 LTS (x86_64)  
**Kernel:** 5.4.0-56-generic  
**Compiler:** C/C++/Fortran: Version 3.0.0 of AOCC  
**Parallel:** Yes  
**Firmware:** HPE BIOS Version A43 v2.42 04/15/2021 released Apr-2021  
**File System:** ext4  
**System State:** Run level 5 (multi-user)  
**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
Hewlett Packard Enterprise
(Test Sponsor: HPE)
ProLiant DL345 Gen10 Plus
(2.95 GHz, AMD EPYC 75F3)

CPU2017 License: 3
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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>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>600.perlbench_s</td>
<td>32</td>
<td>239</td>
<td>7.42</td>
<td>241</td>
<td>7.38</td>
<td>241</td>
<td>7.38</td>
<td>32</td>
<td>239</td>
<td>7.42</td>
<td>241</td>
<td>7.38</td>
<td>241</td>
<td>7.38</td>
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<tr>
<td>602.gcc_s</td>
<td>32</td>
<td>276</td>
<td>14.4</td>
<td>275</td>
<td>14.5</td>
<td>276</td>
<td>14.4</td>
<td>32</td>
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<td>275</td>
<td>14.5</td>
<td>276</td>
<td>14.4</td>
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<tr>
<td>605.mcf_s</td>
<td>32</td>
<td>211</td>
<td>22.4</td>
<td>211</td>
<td>22.4</td>
<td>211</td>
<td>22.4</td>
<td>32</td>
<td>211</td>
<td>22.4</td>
<td>211</td>
<td>22.4</td>
<td>211</td>
<td>22.4</td>
</tr>
<tr>
<td>623.xalanchmk_s</td>
<td>32</td>
<td>91.1</td>
<td>15.5</td>
<td>91.0</td>
<td>15.6</td>
<td>91.0</td>
<td>15.6</td>
<td>32</td>
<td>91.1</td>
<td>15.5</td>
<td>91.0</td>
<td>15.6</td>
<td>91.0</td>
<td>15.6</td>
</tr>
<tr>
<td>625.x264_s</td>
<td>32</td>
<td>94.0</td>
<td>18.8</td>
<td>94.5</td>
<td>18.7</td>
<td>94.1</td>
<td>18.7</td>
<td>32</td>
<td>94.0</td>
<td>18.8</td>
<td>94.5</td>
<td>18.7</td>
<td>94.1</td>
<td>18.7</td>
</tr>
<tr>
<td>631.deepsjeng_s</td>
<td>32</td>
<td>206</td>
<td>6.95</td>
<td>207</td>
<td>6.91</td>
<td>208</td>
<td>6.90</td>
<td>32</td>
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<td>6.91</td>
<td>208</td>
<td>6.90</td>
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<tr>
<td>641.leela_s</td>
<td>32</td>
<td>269</td>
<td>6.35</td>
<td>270</td>
<td>6.32</td>
<td>269</td>
<td>6.35</td>
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<td>6.32</td>
<td>269</td>
<td>6.35</td>
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<tr>
<td>648.exchange2_s</td>
<td>32</td>
<td>115</td>
<td>25.6</td>
<td>115</td>
<td>25.6</td>
<td>115</td>
<td>25.6</td>
<td>32</td>
<td>115</td>
<td>25.6</td>
<td>115</td>
<td>25.6</td>
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<td>25.6</td>
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Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

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.

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.

**Environment Variables Notes**

Environment variables set by runcpu before the start of the run:
- GOMP_CPU_AFFINITY = "0-31"
- LD_LIBRARY_PATH = 
  
  "/home/SPEC_CPU2017/cpu2017/amd_speed_aocc300_milan_B_lib/64;/home/SPEC_CPU2017/cpu2017/amd_speed_aocc300_milan_B_lib/32:"
- MALLOC_CONF = "retain:true"
- OMP_DYNAMIC = "false"
- OMP_SCHEDULE = "static"
- OMP_STACKSIZE = "128M"
- OMP_THREAD_LIMIT = "32"

Environment variables set by runcpu during the 657.xz_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
jemalloc 5.1.0 is available here:  
https://github.com/jemalloc/jemalloc/releases/download/5.1.0/jemalloc-5.1.0.tar.bz2

Submitted by: "Bhatnagar, Prateek" <prateek.bhatnagar@hpe.com>  
Submitted: Mon May 24 12:35:35 EDT 2021  
Submission: cpu2017-20210524-26418.sub

**Platform Notes**

BIOS Configuration  
Workload Profile set to General Peak Frequency Compute  
AMD SMT Option set to Disabled

(Continued on next page)
Platform Notes (Continued)

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
Infinity Fabric Power Management set to Disabled
Infinity Fabric Performance State set to P0
Workload Profile set to Custom
Power Regulator set to OS Control Mode

Sysinfo program /home/SPEC_CPU2017/cpu2017/bin/sysinfo
Rev: r6538 of 2020-09-24 e8664e66d2d7080afeaa89d4b38e2f1c
running on admin Wed Apr 1 17:26:18 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 75F3 32-Core Processor
  1 "physical id"s (chips)
  32 "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 : 32
  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): 32
  On-line CPU(s) list: 0-31
  Thread(s) per core: 1
  Core(s) per socket: 32
  Socket(s): 1
  NUMA node(s): 8
  Vendor ID: AuthenticAMD
  CPU family: 25
  Model: 1
  Model name: AMD EPYC 75F3 32-Core Processor
  Stepping: 1
  CPU MHz: 2875.458
  BogoMIPS: 5888.65

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Virtualization: AMD-V
L1d cache: 1 MiB
L1i cache: 1 MiB
L2 cache: 16 MiB
L3 cache: 256 MiB
NUMA node0 CPU(s): 0-3
NUMA node1 CPU(s): 4-7
NUMA node2 CPU(s): 8-11
NUMA node3 CPU(s): 12-15
NUMA node4 CPU(s): 16-19
NUMA node5 CPU(s): 20-23
NUMA node6 CPU(s): 24-27
NUMA node7 CPU(s): 28-31

Vulnerability Itlb multihit: Not affected
Vulnerability L1tf: 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 disabled, 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 rdtscp 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 extapic cr8_legacy abm sse4a misalignsse dnowprefetch osvw ibr skinit mtrr wdt tce topoext perfctr_core perfctr_nb bptext perfctr_llc mwaitx cplb cat_l3 cdp_l3 invpcid_single hw_pstate ssbd mba ibrs ibpb stibp vmmcall fsqbase bmi1 avx2 smep bmi2 invpcid cqm rdt_a rdseed adx smap clflushopt clwb sha ni xsaveopt xsavevc xgetbv1 xsaves cqm_llc cqm_occup_llc cqm_mbb_total cqm_mbb_local clzero irperf xsaveerpr whonoinvd arat npt lbv svm_lock nrip_save tsc_scale vmcb_clean flushbyaid decodeassistss pausefilter pfthreshold v_vmsave_vmload vgfl umip pkv ospka vs vpcmulqdq rdpid overflow_recov succor smca

/proc/cpuinfo cache data
  cache size : 512 KB

From numaexit --hardware WARNING: a numaexit 'node' might or might not correspond to a physical chip.
  available: 8 nodes (0-7)
  node 0 cpus: 0 1 2 3
  node 0 size: 128777 MB
  node 0 free: 128402 MB
Hewlett Packard Enterprise
(Test Sponsor: HPE)
ProLiant DL345 Gen10 Plus
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SPECspeed®2017_int_base = 13.4
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CPU2017 License: 3
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Test Date: Apr-2021
Tested by: HPE
Hardware Availability: Apr-2021
Software Availability: Mar-2021

Platform Notes (Continued)

node 1 cpus: 4 5 6 7
node 1 size: 129022 MB
node 1 free: 128894 MB
node 2 cpus: 8 9 10 11
node 2 size: 129022 MB
node 2 free: 128790 MB
node 3 cpus: 12 13 14 15
node 3 size: 128998 MB
node 3 free: 128881 MB
node 4 cpus: 16 17 18 19
node 4 size: 129022 MB
node 4 free: 128898 MB
node 5 cpus: 20 21 22 23
node 5 size: 129022 MB
node 5 free: 128870 MB
node 6 cpus: 24 25 26 27
node 6 size: 129022 MB
node 6 free: 128898 MB
node 7 cpus: 28 29 30 31
node 7 size: 116909 MB
node 7 free: 116732 MB
node distances:

From /proc/meminfo
MemTotal: 1044275640 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

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

(Continued on next page)
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**CPU2017 License:** 3  
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**Platform Notes (Continued)**

```plaintext
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 admin 5.4.0-56-generic #62-Ubuntu SMP Mon Nov 23 19:20:19 UTC 2020 x86_64 x86_64
    x86_64 GNU/Linux

Kernel self-reported vulnerability status:

CPE-2018-12207 (iTLB Multihit): Not affected
CPE-2018-3620 (L1 Terminal Fault): Not affected
Microarchitectural Data Sampling: Not affected
CPE-2017-5754 (Meltdown): Not affected
CPE-2018-3639 (Speculative Store Bypass): Mitigation: Speculative Store Bypass disabled via prctl and seccomp
CPE-2017-5753 (Spectre variant 1): Mitigation: usercopy/swapsps barriers and __user pointer sanitation
CPE-2017-5715 (Spectre variant 2): Mitigation: Full AMD retpoline, IBFB: conditional, IBRS_FW, STIBP: disabled, RSB filling
CPE-2020-0543 (Special Register Buffer Data Sampling): Not affected
CPE-2019-11135 (TSX Asynchronous Abort): Not affected
un-level 5 Apr 1 17:23

SPEC is set to: /home/SPEC_CPU2017/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/mapper/ubuntu--vg-ubuntu--lv ext4</td>
<td>196G</td>
<td>83G</td>
<td>104G</td>
<td>45%</td>
<td></td>
<td>/</td>
</tr>
</tbody>
</table>

From /sys/devices/virtual/dmi/id

Vendor: HPE  
Product: ProLiant DL345 Gen10 Plus  
Product Family: ProLiant  
Serial: J20APP000K

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

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Platform Notes (Continued)

BIOS:
  BIOS Vendor: HPE
  BIOS Version: A43
  BIOS Date: 04/15/2021
  BIOS Revision: 2.42
  Firmware Revision: 2.40

(End of data from sysinfo program)

Compiler Version Notes

C
------------------------------
  600.perlbench_s(base, peak) 602.gcc_s(base, peak) 605.mcf_s(base, peak) 625.x264_s(base, peak) 657.xz_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++
------------------------------
  620.omnetpp_s(base, peak) 623.xalancbmk_s(base, peak) 631.deepsjeng_s(base, peak) 641.leela_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

Fortran
------------------------------
  648.exchange2_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
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Base Compiler Invocation

C benchmarks:
clang

C++ benchmarks:
clang++

Fortran benchmarks:
flang

Base Portability Flags

600.perlbench_s: -DSPEC_LINUX_X64 -DSPEC_LP64
602.gcc_s: -DSPEC_LP64
605.mcf_s: -DSPEC_LP64
620.omnetpp_s: -DSPEC_LP64
623.xalancbmk_s: -DSPEC_LINUX -DSPEC_LP64
625.x264_s: -DSPEC_LP64
631.deepsjeng_s: -DSPEC_LP64
641.leela_s: -DSPEC_LP64
648.exchange2_s: -DSPEC_LP64
657.xz_s: -DSPEC_LP64

Base Optimization Flags

C benchmarks:
-m64 -mno-adx -mno-sse4a -Wl,-allow-multiple-definition
-Wl,-mllvm -Wl, -enable-licm-vrp -Wl,-mllvm -Wl,-region-vectorize
-Wl,-mllvm -Wl,-function-specialize
-Wl,-mllvm -Wl, -align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl, -reduce-array-computations=3 -O3 -march=znver3
-fveclib=AMDLIBM -ffast-math -flto -fstruct-layout=5
-mllvm -unroll-threshold=50 -mllvm -inline-threshold=1000
-fremap-arrays -mllvm -function-specialize -flv-function-specialization
-mllvm -enable-gvn-hoist -mllvm -global-vectorize-slp=true
-mllvm -enable-licm-vrp -mllvm -reduce-array-computations=3 -z muldefs
-DSPEC_OPENMP -fopenmp -fopenmp=libomp -lomp -lamdlibm -ljemalloc
-lflang -lflangrti

C++ benchmarks:
-m64 -std=c++98 -mno-adx -mno-sse4a
-Wl,-mllvm -Wl, -do-block-reorder=aggressive
-Wl,-mllvm -Wl, -region-vectorize -Wl,-mllvm -Wl,-function-specialize

(Continued on next page)
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Base Optimization Flags (Continued)

C++ benchmarks (continued):
-Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3 -O3 -march=znver3
-fveclib=AMDLIBM -ffast-math -flto -mllvm -enable-partial-unswitch
-mllvm -unroll-threshold=100 -finline-aggressive
-mllvm -function-specialization -mllvm -loop-unswitch-threshold=200000
-mllvm -reroll-loops -mllvm -aggressive-loop-unswitch
-mllvm -extra-vectorizer-passes -mllvm -reduce-array-computations=3
-mllvm -global-vectorize-slp=true -mllvm -convert-pow-exp-to-int=false
-z muldefs -mllvm -do-block-reorder=aggressive
-fvirtual-function-elimination -fvisibility=hidden -DSPEC_OPENMP
-fopenmp -fopenmp=libomp -lomp -lamdlibm -ljemalloc -lflangrti

Fortran benchmarks:
-m64 -mno-adx -mno-sse4a -Wl,-mllvm -Wl,-inline-recursion=4
-Wl,-mllvm -Wl,-lsr-in-nested-loop -Wl,-mllvm -Wl,-enable-iv-split
-Wl,-mllvm -Wl,-region-vectorize -Wl,-mllvm -Wl,-function-specialize
-Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3 -O3 -march=znver3
-fveclib=AMDLIBM -ffast-math -flto -z muldefs
-mllvm -unroll-aggressive -mllvm -unroll-threshold=150 -DSPEC_OPENMP
-fopenmp -fopenmp=libomp -lomp -lamdlibm -ljemalloc -lflangrti

Base Other Flags

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

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

Fortran benchmarks:
-Wno-return-type

Peak Compiler Invocation

C benchmarks:
clang

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SPEC CPU®2017 Integer Speed Result
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Hewlett Packard Enterprise
(Test Sponsor: HPE)
ProLiant DL345 Gen10 Plus
(2.95 GHz, AMD EPYC 75F3)

SPECspeed®2017_int_base = 13.4
SPECspeed®2017_int_peak = 13.4

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

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

Peak Compiler Invocation (Continued)

C++ benchmarks:
clang++

Fortran benchmarks:
flang

Peak Portability Flags
Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:
600.perlbench_s: basepeak = yes
602.gcc_s: basepeak = yes
605.mcf_s: basepeak = yes
625.x264_s: basepeak = yes
657.xz_s: -m64 -mno-adx -mno-sse4a -Wl,-allow-multiple-definition
-Wl,-mlllvm -Wl,-enable-licm-vrp
-Wl,-mlllvm -Wl,-function-specialize
-Wl,-mlllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mlllvm -Wl,-reduce-array-computations=3 -Ofast
-march=znver3 -fveclib=AMDLIBM -ffast-math -flto
-fstruct-layout=5 -mlllvm -unroll-threshold=50
-fremp-arrays -fvy-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 -DSPEC_OPENMP -fopenmp
-fopenmp=libomp -lomp -lamdllibm -ljemalloc -lflang

C++ benchmarks:
620.omnetpp_s: basepeak = yes
623.xalancbmk_s: basepeak = yes

(Continued on next page)
Hewlett Packard Enterprise
(Test Sponsor: HPE)
ProLiant DL345 Gen10 Plus
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<table>
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</tr>
</tbody>
</table>

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

Peak Optimization Flags (Continued)

631.deepsjeng_s: basepeak = yes
641.leela_s: basepeak = yes

Fortran benchmarks:
648.exchange2_s: basepeak = yes

Peak Other Flags

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

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

Tested with SPEC CPU®2017 v1.1.5 on 2020-04-01 13:26:18-0400.
Report generated on 2021-06-08 19:52:56 by CPU2017 PDF formatter v6442.
Originally published on 2021-06-08.