**SPEC CPU®2017 Integer Rate Result**

**Hewlett Packard Enterprise**  
(Test Sponsor: HPE)  
ProLiant DL365 Gen10 Plus  
(2.75 GHz, AMD EPYC 7453)

**SPECraten®2017_int_base = 388**  
**SPECraten®2017_int_peak = 407**

- **CPU2017 License:** 3  
- **Test Sponsor:** HPE  
- **Tested by:** HPE  
- **Test Date:** Jun-2021  
- **Hardware Availability:** Jun-2021  
- **Software Availability:** Mar-2021

### Hardware

- **CPU Name:** AMD EPYC 7453  
- **Max MHz:** 3450  
- **Nominal:** 2750  
- **Enabled:** 56 cores, 2 chips, 2 threads/core  
- **Orderable:** 1.2 chip(s)  
- **Cache L1:** 32 KB I + 32 KB D on chip per core  
- **L2:** 512 KB I+D on chip per core  
- **L3:** 64 MB I+D on chip per chip, 16 MB shared / 7 cores  
- **Other:** None  
- **Memory:** 2 TB (16 x 128 GB 4Rx4 PC4-3200AA-L)  
- **Storage:** 1 x 196 GB SATA 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:** No  
- **Firmware:** HPE BIOS Version A42 v2.42 04/29/2021 released Apr-2021  
- **File System:** ext4  
- **System State:** Run level 5 (multi-user)  
- **Base Pointers:** 64-bit  
- **Peak Pointers:** 32/64-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

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Results Table

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<thead>
<tr>
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</tbody>
</table>

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.
'nprocagt1' 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 limit
'ulimit -l 2097152' was used to set environment locked pages in memory limit
runcpu command invoked through numaclt i.e.: numaclt --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.
'echo always > /sys/kernel/mm/transparent_hugepage/enabled' and
(Continued on next page)
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SPECrate®2017_int_base = 388
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Operating System Notes (Continued)

'echo always > /sys/kernel/mm/transparent_hugepage/defrag' run as root for peak integer runs and all FP runs to enable Transparent Hugepages (THP).
'echo madvise > /sys/kernel/mm/transparent_hugepage/enabled' run as root for base integer runs to enable THP only on request.

Environment Variables Notes

Environment variables set by runcpu before the start of the run:
LD_LIBRARY_PATH = 
"/home/SPEC_CPU2017/amd_rate_aocc300_milan_A_lib/64;/home/SPEC_CPU2017/a
md_rate_aocc300_milan_A_lib/32:" MALLOC_CONF = "retain:true"

Environment variables set by runcpu during the 523.xalancbmk_r peak run:
MALLOC_CONF = "thp:never"

General Notes

Binaries were compiled on a system with 2x AMD EPYC 7742 CPU + 512GiB 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

Submitted by: "Bhatnagar, Prateek" <prateek.bhatnagar@hpe.com>
Submitted: Mon Jun 21 10:16:41 EDT 2021
Submission: cpu2017-20210621-27526.sub

Platform Notes

BIOS Configuration
Workload Profile set to General Throughput 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 Four memory domains per socket

(Continued on next page)
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<thead>
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<tbody>
<tr>
<td>Infinity Fabric Power Management set to Disabled</td>
</tr>
<tr>
<td>Infinity Fabric Performance State set to P0</td>
</tr>
<tr>
<td>Thermal Configuration set to Maximum Cooling</td>
</tr>
<tr>
<td>Workload Profile set to Custom</td>
</tr>
<tr>
<td>L2 HW Prefetcher set to Disabled</td>
</tr>
</tbody>
</table>

Sysinfo program /home/SPEC_CPU2017/bin/sysinfo
Rev: r6538 of 2020-09-24 e8664e6d2d7080afeaa89d4b38e2f1c
running on admin Wed Apr 1 17:31:25 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 7453 28-Core Processor
2 "physical id"s (chips)
112 "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 : 28
siblings : 56
physical 0: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24 25 26 27 28 29 30
physical 1: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24 25 26 27 28 29 30

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): 112
On-line CPU(s) list: 0-111
Thread(s) per core: 2
Core(s) per socket: 28
Socket(s): 2
NUMA node(s): 8
Vendor ID: AuthenticAMD
CPU family: 25
Model: 1
Model name: AMD EPYC 7453 28-Core Processor
Stepping: 1
CPU MHz: 2826.303
BogoMIPS: 5489.63
Virtualization: AMD-V
L1d cache: 1.8 MiB

(Continued on next page)
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Platform Notes (Continued)

L1i cache: 1.8 MiB
L2 cache: 28 MiB
L3 cache: 128 MiB
NUMA node0 CPU(s): 0-6,56-62
NUMA node1 CPU(s): 7-13,63-69
NUMA node2 CPU(s): 14-20,70-76
NUMA node3 CPU(s): 21-27,77-83
NUMA node4 CPU(s): 28-34,84-90
NUMA node5 CPU(s): 35-41,91-97
NUMA node6 CPU(s): 42-48,98-104
NUMA node7 CPU(s): 49-55,105-111
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 sanitization
Vulnerability Spectre v2: Mitigation; Full AMD retpoline, IBPB conditional, IBRS_FW, STIBP always-on, RSB filling
Vulnerability Srbds: 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
       pdelgb rdtsscp 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 3dnowprefetch osvw ibr skinit wdt tce topoext perfctr_core perfctr_nb
       bext perfctr_llc mwaitx cpb cat_l3 cdp_l3 invpcid_single hw_pstate ssbd mba ibrs
       ibpb stibp vmcall fsgsbase bmi1 avx2 smep bmi2 invpcid cmqm rdtd rdseed adx smap
       clflushopt clwb sha ni xsaveopt xsaves xsavec xgetbv1 xsaves cqm_llc cqm_occu
       pnode0 clwb sha ni xsaveopt xsaves xgetbv1 xsaves cqm_llc cqm_occu
       cqm_mbb_total cqm_mbb_local clzero irperf xsaveerptr wbnoinvd arat npt lbv svm
       nlock nrp_save tsc_scale vmcb_clean flushbyaid decodeassist passfilter pffthreshold
       v_vmsave_vmload vgif umip pkos va_cmullqdp 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: 8 nodes (0-7)
  node 0 cpus: 0 1 2 3 4 5 6 56 57 58 59 60 61 62
  node 0 size: 257796 MB
  node 0 free: 257335 MB
  node 1 cpus: 7 8 9 10 11 12 13 63 64 65 66 67 68 69
  node 1 size: 258044 MB

(Continued on next page)
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</tr>
</thead>
<tbody>
<tr>
<td>node 1 free: 257799 MB</td>
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<tr>
<td>node 2 cpus: 14 15 16 17 18 19 20 70 71 72 73 74 75 76</td>
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<td>node 2 size: 258044 MB</td>
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<tr>
<td>node 2 free: 257730 MB</td>
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<tr>
<td>node 3 cpus: 21 22 23 24 25 26 27 77 78 79 80 81 82 83</td>
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<td>node 3 size: 258008 MB</td>
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<tr>
<td>node 3 free: 257753 MB</td>
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<td>node 4 cpus: 28 29 30 31 32 33 34 84 85 86 87 88 89 90</td>
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<td>node 4 size: 258044 MB</td>
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<td>node 4 free: 257816 MB</td>
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<td>node 5 cpus: 35 36 37 38 39 40 41 91 92 93 94 95 96 97</td>
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<td>5: 32 32 32 32 12 12 12 12</td>
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<tr>
<td>6: 32 32 32 32 12 12 12 12</td>
</tr>
<tr>
<td>7: 32 32 32 32 12 12 12 10</td>
</tr>
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From /proc/meminfo
MemTotal: 2113606332 kB
HugePages_Total: 0
Hugepagesize: 2048 kB
/sbin/tuned-adm active
Current active profile: balanced
/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

(Continued on next page)
Platform Notes (Continued)

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 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:

CVE-2018-12207 (iTLB Multihit): Not affected
CVE-2018-3620 (L1 Terminal Fault): Not affected
Microarchitectural Data Sampling: Not affected
CVE-2017-5754 (Meltdown): Mitigation: Speculative Store Bypass disabled via prctl and seccomp
CVE-2018-3639 (Speculative Store Bypass): Mitigation: Speculative Store Bypass disabled via prctl and seccomp

CVE-2017-5753 (Spectre variant 1):
    Mitigation: usercopy/swapsgs 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 17:24

SPEC is set to: /home/SPEC_CPU2017

Filesystem                        Type  Size  Used Avail Use% Mounted on
/dev/mapper/ubuntu--vg-ubuntu--lv ext4  196G   42G  145G  23% /

From /sys/devices/virtual/dmi/id
Vendor:         HPE
Product:        ProLiant DL365 Gen10 Plus
Product Family: ProLiant
Serial:         CN70430NKR

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:
    16x Samsung M386AAG40AM3-CWE 128 GB 4 rank 3200
    16x UNKNOWN NOT AVAILABLE

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Platform Notes (Continued)

BIOS:
  BIOS Vendor:       HPE
  BIOS Version:      A42
  BIOS Date:         04/29/2021
  BIOS Revision:     2.42
  Firmware Revision: 2.42

(End of data from sysinfo program)

Compiler Version Notes

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<tbody>
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<td>LLVM Mirror.Version.12.0.0)</td>
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<tr>
<td></td>
<td>Target: i386-unknown-linux-gnu</td>
</tr>
<tr>
<td></td>
<td>Thread model: posix</td>
</tr>
<tr>
<td></td>
<td>InstalledDir: /opt/AMD/aocc-compiler-3.0.0/bin</td>
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<td>Thread model: posix</td>
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==============================================================================
<table>
<thead>
<tr>
<th>C</th>
<th>500.perlbench_r(base, peak) 502.gcc_r(base) 505.mcf_r(base, peak) 525.x264_r(base, peak) 557.xz_r(base, peak)</th>
</tr>
</thead>
</table>

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Hewlett Packard Enterprise
(Test Sponsor: HPE)
ProLiant DL365 Gen10 Plus
(2.75 GHz, AMD EPYC 7453)

SPEC CPU®2017 Integer Rate Result
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SPECrate®2017_int_base = 388
SPECrate®2017_int_peak = 407

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

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

Compiler Version Notes (Continued)

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++ | 523.xalancbmk_r(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: i386-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc-compiler-3.0.0/bin

C++ | 520.omnetpp_r(base, peak) 523.xalancbmk_r(base)
     | 531.deepsjeng_r(base, peak) 541.leela_r(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++ | 523.xalancbmk_r(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: i386-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc-compiler-3.0.0/bin

C++ | 520.omnetpp_r(base, peak) 523.xalancbmk_r(base)
     | 531.deepsjeng_r(base, peak) 541.leela_r(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

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

InstalledDir: /opt/AMD/aocc-compiler-3.0.0/bin

Fortran | 548.exchange2_r(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

Base Compiler Invocation

C benchmarks:
clang

C++ benchmarks:
clang++

Fortran benchmarks:
flang

Base Portability Flags

500.perlbench_r -DSPEC_LINUX_X64 -DSPEC_LP64
502.gcc_r -DSPEC_LP64
505.mcf_r -DSPEC_LP64
520.omnetpp_r -DSPEC_LP64
523.xalancmk_r -DSPEC_LINUX -DSPEC_LP64
525.x264_r -DSPEC_LP64
531.deepsjeng_r -DSPEC_LP64
541.leela_r -DSPEC_LP64
548.exchange2_r -DSPEC_LP64
557.xz_r -DSPEC_LP64

Base Optimization Flags

C benchmarks:
-m64 -Wl,-allow-multiple-definition -Wl,-mllvm -Wl,-enable-licm-vrp

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SPEC CPU®2017 Integer Rate Result

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Base Optimization Flags (Continued)

C benchmarks (continued):
-mlibm -Wl,-region-vectorize
-Wl, -mlibm -Wl,-function-specialize
-Wl, -mlibm -Wl,-align-all-nofallthru-blocks=6
-Wl, -mlibm -Wl,-reduce-array-computations=3 -O3 -ffast-math
-march=znver3 -fveclib=AMDLIBM -fstruct-layout=5
-mlibm -unroll-threshold=50 -mlibm -inline-threshold=1000
-freemap-arrays -mlibm -function-specialize -flv-function-specialization
-mlibm -enable-gvn-hoist -mlibm -global-vectorize-slp=true
-mlibm -enable-licm-vrp -mlibm -reduce-array-computations=3 -z muldefs
-lamdlibm -ljemalloc -lflang -flangrti

C++ benchmarks:
m64 -std=c++98 -Wl, -mlibm -Wl,-do-block-reorder=aggressive -flto
-Wl, -mlibm -Wl,-region-vectorize -Wl,-mlibm -Wl,-function-specialize
-Wl, -mlibm -Wl,-align-all-nofallthru-blocks=6
-Wl, -mlibm -Wl,-reduce-array-computations=3 -O3 -ffast-math
-march=znver3 -fveclib=AMDLIBM -mlibm -enable-partial-unswitch
-mlibm -unroll-threshold=100 -finline-aggressive
-flv-function-specialization -mlibm -loop-unswitch-threshold=200000
-mlibm -reroll-loops -mlibm -aggressive-loop-unswitch
-mlibm -extra-vectorizer-passes -mlibm -reduce-array-computations=3
-mlibm -global-vectorize-slp=true -mlibm -convert-pow-exp-to-int=false
-z muldefs -mlibm -do-block-reorder=aggressive
-fvirtual-function-elimination -fvisibility=hidden -lamdlibm
-ljemalloc -lflang -flangrti

Fortran benchmarks:
m64 -Wl,-mlibm -Wl,-inline-recursion=4
-flto -Wl, -mlibm -Wl,-region-vectorize
-Wl, -mlibm -Wl,-function-specialize
-Wl, -mlibm -Wl,-align-all-nofallthru-blocks=6
-Wl, -mlibm -Wl,-reduce-array-computations=3 -O3 -ffast-math
-march=znver3 -fveclib=AMDLIBM -z muldefs -mlibm -unroll-aggressive
-mlibm -unroll-threshold=500 -lamdlibm -ljemalloc -lflang -flangrti

Base Other Flags

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

C++ benchmarks:
-Wno-unused-command-line-argument
SPEC CPU®2017 Integer Rate Result

Hewlett Packard Enterprise
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SPECrate®2017_int_base = 388
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CPU2017 License: 3
Test Sponsor: HPE
Tested by: HPE

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

Peak Compiler Invocation

C benchmarks:
clang

C++ benchmarks:
clang++

Fortran benchmarks:
flang

Peak Portability Flags

500.perlbench_r: -DSPEC_LINUX_X64 -DSPEC_LP64
502.gcc_r: -D_FILE_OFFSET_BITS=64
505.mcf_r: -DSPEC_LP64
520.omnetpp_r: -DSPEC_LP64
523.xalancbmk_r: -DSPEC_LINUX -DSPEC_LP64
525.x264_r: -DSPEC_LP64
531.deepsjeng_r: -DSPEC_LP64
541.leela_r: -DSPEC_LP64
548.exchange2_r: -DSPEC_LP64
557.xz_r: -DSPEC_LP64

Peak Optimization Flags

C benchmarks:
500.perlbench_r: -m64 -Wl,-allow-multiple-definition
-Wl, -mllvm -Wl, -enable-licm-vrp -flto
-Wl, -mllvm -Wl, -function-specialize
-Wl, -mllvm -Wl, -align-all-nofallthru-blocks=6
-Wl, -mllvm -Wl, -reduce-array-computations=3
-fprofile-instr-generate(pass 1)
-fprofile-instr-use(pass 2) -Ofast -march=znver3
-fveclib=AMDLIBM -fstruct-layout=7
-mllvm -unroll-threshold=50 -fremap-arrays
-fly-function-specialization -mllvm -inline-threshold=1000
-mllvm -enable-gvn-hoist -mllvm -global-vectorize-slp=false
-mllvm -function-specialize -mllvm -enable-licm-vrp
-mllvm -reduce-array-computations=3 -lamdlibm -ljemalloc
502.gcc_r: -m32 -Wl,-allow-multiple-definition
-Wl, -mllvm -Wl, -enable-licm-vrp -flto

(Continued on next page)
SPEC CPU®2017 Integer Rate Result

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CPU2017 License: 3
Test Sponsor: HPE
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Peak Optimization Flags (Continued)

502.gcc_r (continued):
- W1, -mllvm -W1, -function-specialize -Ofast -march=znver3
- fveclib=AMDLIBM -fstruct-layout=7
- mllvm -unroll-threshold=50 -fremap-arrays
- f1v-function-specialization -mllvm -inline-threshold=1000
- mllvm -enable-gvn-hoist -mllvm -global-vectorize-slp=true
- mllvm -function-specialize -mllvm -enable-licm-vrp
- mllvm -reduce-array-computations=3 -fgnu89-inline
- ljemalloc

505.mcf_r: -m64 -W1, -allow-multiple-definition
- W1, -mllvm -W1, -function-specialize -flto
- W1, -mllvm -W1, -function-specialize
- W1, -mllvm -W1, -align-all-nofallthru-blocks=6
- W1, -mllvm -W1, -reduce-array-computations=3 -Ofast
- mllvm -unroll-threshold=50 -fremap-arrays
- -mllvm -function-specialization -mllvm -inline-threshold=1000
- mllvm -enable-gvn-hoist -mllvm -global-vectorize-slp=true
- mllvm -function-specialize -mllvm -enable-licm-vrp
- mllvm -reduce-array-computations=3 -lamdlibm -ljemalloc

525.x264_r: basepeak = yes

557.xz_r: Same as 505.mcf_r

C++ benchmarks:

520.omnetpp_r: basepeak = yes

523.xalancbmk_r: -m32 -W1, -mllvm -W1, -do-block-reorder=aggressive -flto
- W1, -mllvm -W1, -function-specialize
- W1, -mllvm -W1, -align-all-nofallthru-blocks=6
- W1, -mllvm -W1, -reduce-array-computations=3 -Ofast
- march=znver3 -fveclib=AMDLIBM -fstruct-layout=7
- mllvm -unroll-threshold=50 -fremap-arrays
- f1v-function-specialization -mllvm -inline-threshold=1000
- mllvm -enable-gvn-hoist -mllvm -global-vectorize-slp=true
- mllvm -function-specialize -mllvm -enable-licm-vrp
- mllvm -reduce-array-computations=3 -mllvm -reroll-loops
- mllvm -aggressive-loop-unswitch
- mllvm -reduce-array-computations=3
- mllvm -global-vectorize-slp=true
- mllvm -do-block-reorder=aggressive
- fvirtual-function-elimination -fvisibility=hidden
- ljemalloc

531.deepsjeng_r: basepeak = yes

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Hewlett Packard Enterprise
ProLiant DL365 Gen10 Plus
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SPECratedata

SPECrate®2017_int_base = 388
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CPU2017 License: 3
Test Sponsor: HPE
Tested by: HPE

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

Peak Optimization Flags (Continued)

541.leela_r: basepeak = yes
Fortran benchmarks:

548.exchange2_r: basepeak = yes

Peak Other Flags

C benchmarks (except as noted below):
- Wno-unused-command-line-argument

502.gcc_r: -L/usr/lib -Wno-unused-command-line-argument
- L/sppo/bin/cpu2017v115aocc3/amd_rate_aocc300_milan_A_lib/32

C++ benchmarks (except as noted below):
- Wno-unused-command-line-argument

523.xalancbmk_r: -L/usr/lib -Wno-unused-command-line-argument
- L/sppo/bin/cpu2017v115aocc3/amd_rate_aocc300_milan_A_lib/32

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.

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