SPEC CPU®2017 Integer Rate Result

Hewlett Packard Enterprise
(Test Sponsor: HPE)
ProLiant DL345 Gen10 Plus
(2.60 GHz, AMD EPYC 7513)

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

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

SPECrates®2017_int_base = 252
SPECrates®2017_int_peak = 262

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 PC4-32000AA-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: No
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: 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 Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
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<tbody>
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<td>505.mcf_r</td>
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SPECrate®2017_int_base = 252

SPECrate®2017_int_peak = 262

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.
'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 limit
'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/enable' and

(Continued on next page)
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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/cpu2017/amd_rate_aocc300_milan_A_lib/64;/home/SPEC_CPU2017/cpu2017/amd_rate_aocc300_milan_A_lib/32:"

MALLOCONF = "retain:true"

Environment variables set by runcpu during the 523.xalancbmk_r peak run:
MALLOCONF = "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 May 24 12:36:50 EDT 2021
Submission: cpu2017-20210524-26412.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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### Platform Notes (Continued)

Infinity Fabric Power Management set to Disabled  
Infinity Fabric Performance State set to P0  
Thermal Configuration set to Maximum Cooling  
Workload Profile set to Custom  
L2 HW Prefetcher set to Disabled

Sysinfo program /home/SPEC_CPU2017/cpu2017/bin/sysinfo  
Rev: r6538 of 2020-09-24 e8664e66d2d7080afeaa89d4b38e2f1c  
running on admin Wed Apr 1 17:29:01 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

```plaintext
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:

```plaintext
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
Frequency boost: enabled
CPU MHz: 2395.460
CPU max MHz: 2600.000
CPU min MHz: 1500.000
BogoMIPS: 5190.76
Virtualization: AMD-V
```

(Continued on next page)
Platform Notes (Continued)

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 Itlb multihit: Not affected
Vulnerability L1tf: Not affected
Vulnerability Mds: Not affected
Vulnerability Meltdown: Not affected
Vulnerability Spectre v1: Mitigation; Speculative Store Bypass disabled via prctl and seccomp
Vulnerability Spectre v2: Mitigation; Full AMD rettopline, IBPB conditional, IBRS_FW, STIBP always-on, RSB filling
Vulnerability Srbds: Not affected
Vulnerability TxS 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 pclid sse4_1 sse4_2 movbe popcnt aes xsave avx f16c rdrand lahf_lm cmp_legacy svm extapic cr8_legacy abm sse4a misalignsse 3nowprefetch osvw ibs skinit wdt tce topoext perfctr_core perfctr_nb bpxe perfctr_lcc mwaitx cpb cat_l3 cd_l3 invpcid_single hw_pstate ssbd mba ibrs ibpb stibp vmmcall fgsgbase bml1 avx2 smep bmi2 invpcid cmx rdt_a rdseed adx smap clflushopt clwb sha ni xsaveopt xsaves xgetbv1 xsaves cmx_lcc cmx_mmb_total cmx_mmb_local clzero irlperf xsavesrptr wbnoinvd arat npt lbrv svm_lock nrip_save tsc_scale vmbc_clean flushbyasid decodeassist pffthreshold v_vmssave_vmload vgif umip pku ospke vaes vpclmulqdq rdpid overflow_recov succor smca

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
node 0 free: 257177 MB
node 1 cpus: 8 9 10 11 12 13 14 15 40 41 42 43 44 45 46 47
node 1 size: 258043 MB
node 1 free: 257560 MB
node 2 cpus: 16 17 18 19 20 21 22 23 48 49 50 51 52 53 54 55
node 2 size: 258043 MB

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

node 2 free: 257724 MB  
node 3 cpus: 24 25 26 27 28 29 30 31 56 58 59 60 61 62 63  
node 3 size: 258007 MB  
node 3 free: 257668 MB  
node distances:  
node 0 1 2 3  
0: 10 12 12 12  
1: 12 10 12 12  
2: 12 12 10 12  
3: 12 12 12 10  

From /proc/meminfo  
MemTotal: 1056657216 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 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): Not affected  
CVE-2018-3639 (Speculative Store Bypass): Mitigation: Speculative Store Bypass disabled via prctl and seccomp  

(Continued on next page)
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## Compiler Version Notes

```
C      | 502.gcc_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

---

### Platform Notes (Continued)

- **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: /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</td>
<td>ext4</td>
<td>196G</td>
<td>83G</td>
<td>104G</td>
<td>45%</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

- 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)
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Compiler Version Notes (Continued)

Thread model: posix  
InstalledDir: /opt/AMD/aocc-compiler-3.0.0/bin

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<td>Thread model: posix</td>
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<td>InstalledDir: /opt/AMD/aocc-compiler-3.0.0/bin</td>
</tr>
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### Base Compiler Invocation

C benchmarks: clang

(Continued on next page)
### Base Compiler Invocation (Continued)

- **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.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`

### Base Optimization Flags

- **C benchmarks:**
  - `-m64` `-Wl,-m64,-Wl,-Wl,-mllvm -Wl,-Wl,-function-specialize`
  - `-Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6`
  - `-Wl,-mllvm -Wl,-region-array-computations=3 -O3 -ffast-math`
  - `-march=znver3 -fveclib=AMDLIBM -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-lcm-vrp -mllvm -reduce-array-computations=3 -z muldefs`
  - `-lamdlibm -ljemalloc -flang -lflangrti`

- **C++ benchmarks:**
  - `-std=c++98` `-Wl,-mllvm -Wl,-do-block-reorder=aggressive -flto`
  - `-Wl,-mllvm -Wl,-region-array-computations -Wl,-mllvm -Wl,-function-specialize`
  - `-Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6`
  - `-Wl,-mllvm -Wl,-reduce-array-computations=3 -O3 -ffast-math`
  - `-march=znver3 -fveclib=AMDLIBM -mllvm -enable-partial-unswitch`
  - `-mllvm -unroll-threshold=100 -finline-aggressive`
  - `-flv-function-specialization -mllvm -loop-unswitch-threshold=200000`
**SPEC CPU®2017 Integer Rate Result**

**Hewlett Packard Enterprise**  
(Test Sponsor: HPE)  
ProLiant DL345 Gen10 Plus  
(2.60 GHz, AMD EPYC 7513)

**SPECrate®2017_int_base = 252**  
**SPECrate®2017_int_peak = 262**

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

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**Base Optimization Flags (Continued)**

C++ benchmarks (continued):
- `-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`  
- `-lamdlibm`  
- `-ljemalloc -lflang -lflangrti`

Fortran benchmarks:
- `-m64 -Wl, -mllvm -Wl, -inline-recursion=4`  
- `-Wl, -mllvm -Wl, -lsr-in-nested-loop`  
- `-mllvm -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`  
- `-fveclib=AMDLIBM -z muldefs -mllvm -unroll-aggressive`  
- `-mllvm -unroll-threshold=500 -lamdlibm -ljemalloc -lflang -lflangrti`

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**Base Other Flags**

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

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

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**Peak Compiler Invocation**

C benchmarks:
- `clang`

C++ benchmarks:
- `clang++`

Fortran benchmarks:
- `flang`
SPEC CPU®2017 Integer Rate Result

Hewlett Packard Enterprise
(Test Sponsor: HPE)
ProLiant DL345 Gen10 Plus
(2.60 GHz, AMD EPYC 7513)

SPECrate®2017_int_base = 252
SPECrate®2017_int_peak = 262

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

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_LINUX -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
-fflv-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
-Wl,-mllvm -Wl,-function-specialize -Ofast -march=znver3
-fveclib=AMDLIBM -fstruct-layout=7
-mllvm -unroll-threshold=50 -fremap-arrays
-fflv-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 -Wl,-allow-multiple-definition
-Wl,-mllvm -Wl,-enable-licm-vrp -flto
-Wl,-mllvm -Wl,-function-specialize
-Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6

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

505.mcf_r (continued):
-Wl,-mlvml -Wl,-reduce-array-computations=3 -Ofast
-march=znver3 -fveclib=AMDLIBM -fstruct-layout=7
-mlvml -unroll-threshold=50 -fremap-arrays
-flv-function-specialization -mlvml -inline-threshold=1000
-mlvml -enable-gvn-hoist -mlvml -global-vectorize-slp=true
-mlvml -function-specialize -mlvml -enable-licm-vrp
-mlvml -reduce-array-computations=3 -lamdlibm -ljemalloc

525.x264_r: basepeak = yes

557.xz_r: Same as 505.mcf_r

C++ benchmarks:

520.omnetpp_r: -m64 -std=c++98
-Wl,-mlvml -Wl,-do-block-reorder=aggressive -flto
-Wl,-mlvml -Wl,-function-specialize
-Wl,-mlvml -Wl,-align-all-nofallthru-blocks=6
-Wl,-mlvml -Wl,-reduce-array-computations=3 -Ofast
-march=znver3 -fveclib=AMDLIBM -finline-aggressive
-mlvml -unroll-threshold=100 -flv-function-specialization
-mlvml -enable-licm-vrp -mlvml -reroll-loops
-mlvml -aggressive-loop-unswitch
-mlvml -reduce-array-computations=3
-mlvml -global-vectorize-slp=true
-mlvml -do-block-reorder=aggressive
-fvirtual-function-elimination -fvisibility=hidden
-lamdlibm -ljemalloc

523.xalancbmk_r: -m32 -Wl,-mlvml -Wl,-do-block-reorder=aggressive -flto
-Wl,-mlvml -Wl,-function-specialize
-Wl,-mlvml -Wl,-align-all-nofallthru-blocks=6
-Wl,-mlvml -Wl,-reduce-array-computations=3 -Ofast
-march=znver3 -fveclib=AMDLIBM -finline-aggressive
-mlvml -unroll-threshold=100 -flv-function-specialization
-mlvml -enable-licm-vrp -mlvml -reroll-loops
-mlvml -aggressive-loop-unswitch
-mlvml -reduce-array-computations=3
-mlvml -global-vectorize-slp=true
-mlvml -do-block-reorder=aggressive
-fvirtual-function-elimination -fvisibility=hidden
-ljemalloc

531.deepsjeng_r: basepeak = yes

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

Hewlett Packard Enterprise
(Test Sponsor: HPE)
ProLiant DL345 Gen10 Plus
(2.60 GHz, AMD EPYC 7513)

SPECrate®2017_int_base = 252
SPECrate®2017_int_peak = 262

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<th>CPU2017 License: 3</th>
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<td>Test Sponsor: HPE</td>
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<td>Jun-2021</td>
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<tr>
<td>Tested by: HPE</td>
<td>Software Availability:</td>
<td>Mar-2021</td>
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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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