### SPEC CPU®2017 Integer Speed Result

#### Hewlett Packard Enterprise

**Test Sponsor:** HPE  
**ProLiant DL325 Gen10 Plus v2**  
(3.50 GHz, AMD EPYC 73F3)

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

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

**Threads**

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Thread Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>600.perlbench_s</td>
<td>16</td>
</tr>
<tr>
<td>602.gcc_s</td>
<td>16</td>
</tr>
<tr>
<td>605.mcf_s</td>
<td>16</td>
</tr>
<tr>
<td>620.omnetpp_s</td>
<td>16</td>
</tr>
<tr>
<td>623.xalancbmk_s</td>
<td>16</td>
</tr>
<tr>
<td>625.x264_s</td>
<td>16</td>
</tr>
<tr>
<td>631.deepsjeng_s</td>
<td>16</td>
</tr>
<tr>
<td>641.leela_s</td>
<td>16</td>
</tr>
<tr>
<td>648.exchange2_s</td>
<td>16</td>
</tr>
<tr>
<td>657.xz_s</td>
<td>16</td>
</tr>
</tbody>
</table>

#### Hardware

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Name</td>
<td>AMD EPYC 73F3</td>
</tr>
<tr>
<td>Max MHz</td>
<td>4000</td>
</tr>
<tr>
<td>Nominal</td>
<td>3500</td>
</tr>
<tr>
<td>Enabled</td>
<td>16 cores, 1 chip</td>
</tr>
<tr>
<td>Orderable</td>
<td>1 chip</td>
</tr>
<tr>
<td>Cache L1</td>
<td>32 KB I + 32 KB D on chip per core</td>
</tr>
<tr>
<td>L2</td>
<td>512 KB I+D on chip per core</td>
</tr>
<tr>
<td>L3</td>
<td>256 MB I+D on chip per chip, 32 MB shared / 2 cores</td>
</tr>
<tr>
<td>Other</td>
<td>None</td>
</tr>
<tr>
<td>Memory</td>
<td>1 TB (8 x 128 GB 4Rx4 PC4-3200AA-L)</td>
</tr>
<tr>
<td>Storage</td>
<td>1 x 800 GB SAS SSD, RAID 0</td>
</tr>
<tr>
<td>Other</td>
<td>None</td>
</tr>
</tbody>
</table>

#### Software

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>OS</td>
<td>Ubuntu 20.04.1 LTS (x86_64)</td>
</tr>
<tr>
<td>Kernel</td>
<td>5.4.0-54-generic</td>
</tr>
<tr>
<td>Compiler</td>
<td>C/C++/Fortran: Version 3.0.0 of AOCC</td>
</tr>
<tr>
<td>Parallel</td>
<td>Yes</td>
</tr>
<tr>
<td>Firmware</td>
<td>HPE BIOS Version A43 v2.40 02/15/2021 released Mar-2021</td>
</tr>
<tr>
<td>File System</td>
<td>ext4</td>
</tr>
<tr>
<td>System State</td>
<td>Run level 5 (multi-user, GUI disabled)</td>
</tr>
<tr>
<td>Base Pointers</td>
<td>64-bit</td>
</tr>
<tr>
<td>Peak Pointers</td>
<td>64-bit</td>
</tr>
<tr>
<td>Other</td>
<td>jemalloc: jemalloc memory allocator library v5.1.0</td>
</tr>
<tr>
<td>Power Management</td>
<td>BIOS set to prefer performance at the cost of additional power usage</td>
</tr>
</tbody>
</table>
## 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>Base</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>16</td>
<td>246</td>
<td>7.23</td>
<td>246</td>
<td>7.21</td>
<td>246</td>
<td>7.22</td>
<td></td>
<td>1</td>
<td>234</td>
<td>7.60</td>
<td>234</td>
<td>7.60</td>
<td>235</td>
<td>7.57</td>
</tr>
<tr>
<td>602.gcc_s</td>
<td>16</td>
<td>276</td>
<td>14.4</td>
<td>276</td>
<td>14.4</td>
<td>276</td>
<td>14.4</td>
<td></td>
<td>16</td>
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<td>14.4</td>
<td>276</td>
<td>14.4</td>
<td>276</td>
<td>14.4</td>
</tr>
<tr>
<td>605.mcf_s</td>
<td>16</td>
<td>210</td>
<td>22.4</td>
<td>211</td>
<td>22.4</td>
<td>211</td>
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<td></td>
<td>16</td>
<td>210</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>16</td>
<td>90.4</td>
<td>15.7</td>
<td>91.6</td>
<td>15.5</td>
<td>91.2</td>
<td>15.5</td>
<td></td>
<td>16</td>
<td>90.4</td>
<td>15.7</td>
<td>91.6</td>
<td>15.5</td>
<td>91.2</td>
<td>15.5</td>
</tr>
<tr>
<td>625.x264_s</td>
<td>16</td>
<td>93.8</td>
<td>18.8</td>
<td>93.8</td>
<td>18.8</td>
<td>94.1</td>
<td>18.8</td>
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<td>16</td>
<td>93.8</td>
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<td>93.8</td>
<td>18.8</td>
<td>94.1</td>
<td>18.8</td>
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<tr>
<td>648.exchange2_s</td>
<td>16</td>
<td>115</td>
<td>25.6</td>
<td>115</td>
<td>25.7</td>
<td>115</td>
<td>25.6</td>
<td></td>
<td>16</td>
<td>115</td>
<td>25.6</td>
<td>115</td>
<td>25.7</td>
<td>115</td>
<td>25.6</td>
</tr>
<tr>
<td>657.xz_s</td>
<td>16</td>
<td>241</td>
<td>25.7</td>
<td>240</td>
<td>25.8</td>
<td>241</td>
<td>25.6</td>
<td></td>
<td>16</td>
<td>240</td>
<td>25.7</td>
<td>240</td>
<td>25.7</td>
<td>240</td>
<td>25.8</td>
</tr>
</tbody>
</table>

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### 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.

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

(Continued on next page)
**Operating System Notes (Continued)**

To enable Transparent Hugepages (THP) for all allocations,
'echo always > /sys/kernel/mm/transparent_hugepage/enabled' and
'echo always > /sys/kernel/mm/transparent_hugepage/defrag' run as root.
To enable THP only on request for peak runs of 628.pop2_s, and 638.imagick_s,
'echo madvise > /sys/kernel/mm/transparent_hugepage/enabled' run as root.
To disable THP for peak runs of 627.cam4_s, 644.nab_s, 649.fotonik3d_s, and 654.roms_s,
'echo never > /sys/kernel/mm/transparent_hugepage/enabled' run as root.

**Environment Variables Notes**

Environment variables set by runcpu before the start of the run:
GOMP_CPU_AFFINITY = "0-15"
LD_LIBRARY_PATH =
    "/cpu2017/amd_speed_aocc300_milan_B_lib/64;/cpu2017/amd_speed_aocc300_milan_B_lib/32:"
MALLOCONF = "retain:true"
OMP_DYNAMIC = "false"
OMP_SCHEDULE = "static"
OMP_STACKSIZE = "128M"
OMP_THREAD_LIMIT = "16"

Environment variables set by runcpu during the 600.perlbench_s peak run:
GOMP_CPU_AFFINITY = "0"

Environment variables set by runcpu during the 657.xz_s peak run:
GOMP_CPU_AFFINITY = "0-15"

**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
Hewlett Packard Enterprise
(Test Sponsor: HPE)
ProLiant DL325 Gen10 Plus v2
(3.50 GHz, AMD EPYC 73F3)

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

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

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

Platform Notes

BIOS Configuration
Workload Profile set to General Throughput Compute
AMD SMT Option set to Disabled
Determinism Control set to Manual
Performance Determinism set to Power Deterministic
Last-Level Cache (LLC) as NUMA Node set to Enabled
Memory PStates set to Disabled
Data Fabric C-State Enable set to Force Enabled
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
L1 HW Prefetcher set to Disabled

Sysinfo program /cpu2017/bin/sysinfo
Rev: r6538 of 2020-09-24 e8664e66d2d7080afeaa89d4b38e2f1c
running on dl325gen10plus Wed Apr 1 17:25:17 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 73F3 16-Core Processor
 1 "physical id"s (chips)
 16 "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 : 16
siblings : 16
physical 0: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

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): 16
On-line CPU(s) list: 0-15
Thread(s) per core: 1
Core(s) per socket: 16
Socket(s): 1
NUMA node(s): 8
Vendor ID: AuthenticAMD
CPU family: 25
Model: 1
Model name: AMD EPYC 73F3 16-Core Processor

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

Hewlett Packard Enterprise
(Test Sponsor: HPE)
ProLiant DL325 Gen10 Plus v2
(3.50 GHz, AMD EPYC 73F3)

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: Jun-2021
Software Availability: Mar-2021

Platform Notes (Continued)

Stepping: 1
Frequency boost: enabled
CPU MHz: 2594.081
CPU max MHz: 3500.0000
CPU min MHz: 1500.0000
BogoMIPS: 6986.50
Virtualization: AMD-V
L1d cache: 512 KiB
L1i cache: 512 KiB
L2 cache: 8 MiB
L3 cache: 256 MiB
NUMA node0 CPU(s): 0,1
NUMA node1 CPU(s): 2,3
NUMA node2 CPU(s): 4,5
NUMA node3 CPU(s): 6,7
NUMA node4 CPU(s): 8,9
NUMA node5 CPU(s): 10,11
NUMA node6 CPU(s): 12,13
NUMA node7 CPU(s): 14,15
Vulnerability Itlb multihit: Not affected
Vulnerability L1t: 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 disabled, 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 pcid 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 bpret perfctr_llc mwaitx cpb cat_l3 cdp_l3 invpcid_single hw_pstate ssbd mba ibrs ibpb stibp vmmcall fsgsbase bml1 avx2 smep bmi2 invpcid cmqm rdt_a rdseed adx smap clflushopt clwb sha_ni xsaveopt xsavec xgetbv1 xsaves cqm_llc cqm_occup_llc cqm_mbb_total cqm_mbb_local clzero irperf xsaveprtr wboinvd arat npt lbv svm_lock nrip_save tsc_scale vmcb_clean flushbyasid decodeassists pausefilter pffrehold v_vmsave_vmload vgif umip pku ospke vaes vpclmulqdq rdpid overflow_recover succor smca

/proc/cpuinfo cache data
  cache size : 512 KB

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

Hewlett Packard Enterprise
ProLiant DL325 Gen10 Plus v2
(3.50 GHz, AMD EPYC 73F3)

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

Platform Notes (Continued)

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
    node 0 size: 128776 MB
    node 0 free: 128544 MB
    node 1 cpus: 2 3
    node 1 size: 128999 MB
    node 1 free: 128899 MB
    node 2 cpus: 4 5
    node 2 size: 129023 MB
    node 2 free: 128910 MB
    node 3 cpus: 6 7
    node 3 size: 129023 MB
    node 3 free: 128920 MB
    node 4 cpus: 8 9
    node 4 size: 129023 MB
    node 4 free: 128818 MB
    node 5 cpus: 10 11
    node 5 size: 129023 MB
    node 5 free: 128911 MB
    node 6 cpus: 12 13
    node 6 size: 129023 MB
    node 6 free: 128922 MB
    node 7 cpus: 14 15
    node 7 size: 116910 MB
    node 7 free: 116783 MB

    node distances:
    node   0   1   2   3   4   5   6   7
    0:   10  11  11  11  11  11  11  11
    1:   11  10  11  11  11  11  11  11
    2:   11  11  10  11  11  11  11  11
    3:   11  11  11  10  11  11  11  11
    4:   11  11  11  11  10  11  11  11
    5:   11  11  11  11  11  10  11  11
    6:   11  11  11  11  11  11  10  11
    7:   11  11  11  11  11  11  11  10

    From /proc/meminfo
    MemTotal:       1044278192 kB
    HugePages_Total:       0
    Hugepagesize:       2048 kB

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

    /usr/bin/lsb_release -d

(Continued on next page)
Hewlett Packard Enterprise

ProLiant DL325 Gen10 Plus v2
(3.50 GHz, AMD EPYC 73F3)

SPEC®2017_int_base = 13.4
SPEC®2017_int_peak = 13.4

Platform Notes (Continued)

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
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: usercopy/swaps
   barriers and __user pointer
   sanitization
CVE-2017-5753 (Spectre variant 1):
   Mitigation: Full AMD retpoline,
   IBPB: conditional, IBRS_FW, STIBP:
   disabled, RSB filling
CVE-2017-5715 (Spectre variant 2):
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  23G  673G  4% /

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

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Hewlett Packard Enterprise
(Test Sponsor: HPE)
ProLiant DL325 Gen10 Plus v2
(3.50 GHz, AMD EPYC 73F3)

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

Platform Notes (Continued)

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)

Compiler Version Notes

==============================================================================
<table>
<thead>
<tr>
<th>C</th>
<th>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)</th>
</tr>
</thead>
<tbody>
<tr>
<td>-----</td>
<td>----------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
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

==============================================================================
<table>
<thead>
<tr>
<th>C++</th>
<th>620.omnetpp_s(base, peak) 623.xalancbmk_s(base, peak) 631.deepsjeng_s(base, peak) 641.leela_s(base, peak)</th>
</tr>
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<tbody>
<tr>
<td>------</td>
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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)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc-compiler-3.0.0/bin

==============================================================================
<table>
<thead>
<tr>
<th>Fortran</th>
<th>648.exchange2_s(base, peak)</th>
</tr>
</thead>
<tbody>
<tr>
<td>---------</td>
<td>-----------------------------</td>
</tr>
</tbody>
</table>
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

(Continued on next page)
SPEC CPU®2017 Integer Speed Result
Copyright 2017-2021 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise
(Test Sponsor: HPE)
ProLiant DL325 Gen10 Plus v2
(3.50 GHz, AMD EPYC 73F3)

SPEC@2017_int_base = 13.4
SPECspeed@2017_int_peak = 13.4

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

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

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,-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
-mlvm -unroll-threshold=50 -mlllvm -inline-threshold=1000
-freemap-arrays -mlllvm -function-specialize -flv-function-specialization

(Continued on next page)
Hewlett Packard Enterprise  
(Test Sponsor: HPE)  
ProLiant DL325 Gen10 Plus v2  
(3.50 GHz, AMD EPYC 73F3)  

SPEC CPU®2017 Integer Speed Result  
Copyright 2017-2021 Standard Performance Evaluation Corporation  

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

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

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

Base Optimization Flags (Continued)  

C benchmarks (continued):  
-mlir -enable-gvn-hoist -mlir -global-vectorize-slp=true  
-mlir -disable-licm-vrp -mlir -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,-mlir -Wl,-do-block-reorder=aggressive  
-Wl,-mlir -Wl,-region-vectorize -Wl,-mlir -Wl,-function-specialize  
-Wl,-mlir -Wl,-align-all-nofallback-blocks=6  
-Wl,-mlir -Wl,-reduce-array-computations=3 -O3 -march=znver3  
-fveclib=AMDLIBM -ffast-math -flto -mlir -enable-partial-unswitch  
-mlir -unroll-threshold=100 -finline-aggressive  
-fv2-function-specialization -mlir -loop-unswitch-threshold=200000  
-mlir -reroll-loops -mlir -aggressive-loop-unswitch  
-mlir -extra-vectorizer-passes -mlir -reduce-array-computations=3  
-mlir -global-vectorize-slp=true -mlir -convert-pow-exp-to-int=false  
-z muldefs -mlir -do-block-reorder=aggressive  
-fvirtual-function-elimination -fvisibility=hidden -DSPEC_OPENMP  
-fopenmp -fopenmp=libomp -lomp -lamdlibm -ljemalloc -lflang  
-lflangrti  

Fortran benchmarks:  
-m64 -mno-adx -mno-sse4a -Wl,-mlir -Wl,-inline-recursion=4  
-Wl,-mlir -Wl,-lsr-in-nested-loop -Wl,-mlir -Wl,-enable-iv-split  
-Wl,-mlir -Wl,-region-vectorize -Wl,-mlir -Wl,-function-specialize  
-Wl,-mlir -Wl,-align-all-nofallback-blocks=6  
-Wl,-mlir -Wl,-reduce-array-computations=3 -O3 -march=znver3  
-fveclib=AMDLIBM -ffast-math -flto -z muldefs  
-mlir -unroll-aggressive -mlir -unroll-threshold=150 -DSPEC_OPENMP  
-fopenmp -fopenmp=libomp -lomp -lamdlibm -ljemalloc -lflang  
-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
SPEC CPU®2017 Integer Speed Result
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Hewlett Packard Enterprise
(Test Sponsor: HPE)
ProLiant DL325 Gen10 Plus v2
(3.50 GHz, AMD EPYC 73F3)

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: Jun-2021
Software Availability: Mar-2021

Peak Compiler Invocation

C benchmarks:
clang
C++ benchmarks:
clang++
Fortran benchmarks:
flang

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:


602.gcc_s: basepeak = yes

605.mcf_s: basepeak = yes

625.x264_s: basepeak = yes

657.xz_s: Same as 600.perlbench_s

C++ benchmarks:

(Continued on next page)
Hewlett Packard Enterprise
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ProLiant DL325 Gen10 Plus v2
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**SPEC CPU®2017 Integer Speed Result**

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

**Peak Optimization Flags (Continued)**

620.omnetpp_s: basepeak = yes
623.xalancbmk_s: basepeak = yes
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.

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