



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

## Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL365 Gen10 Plus v2

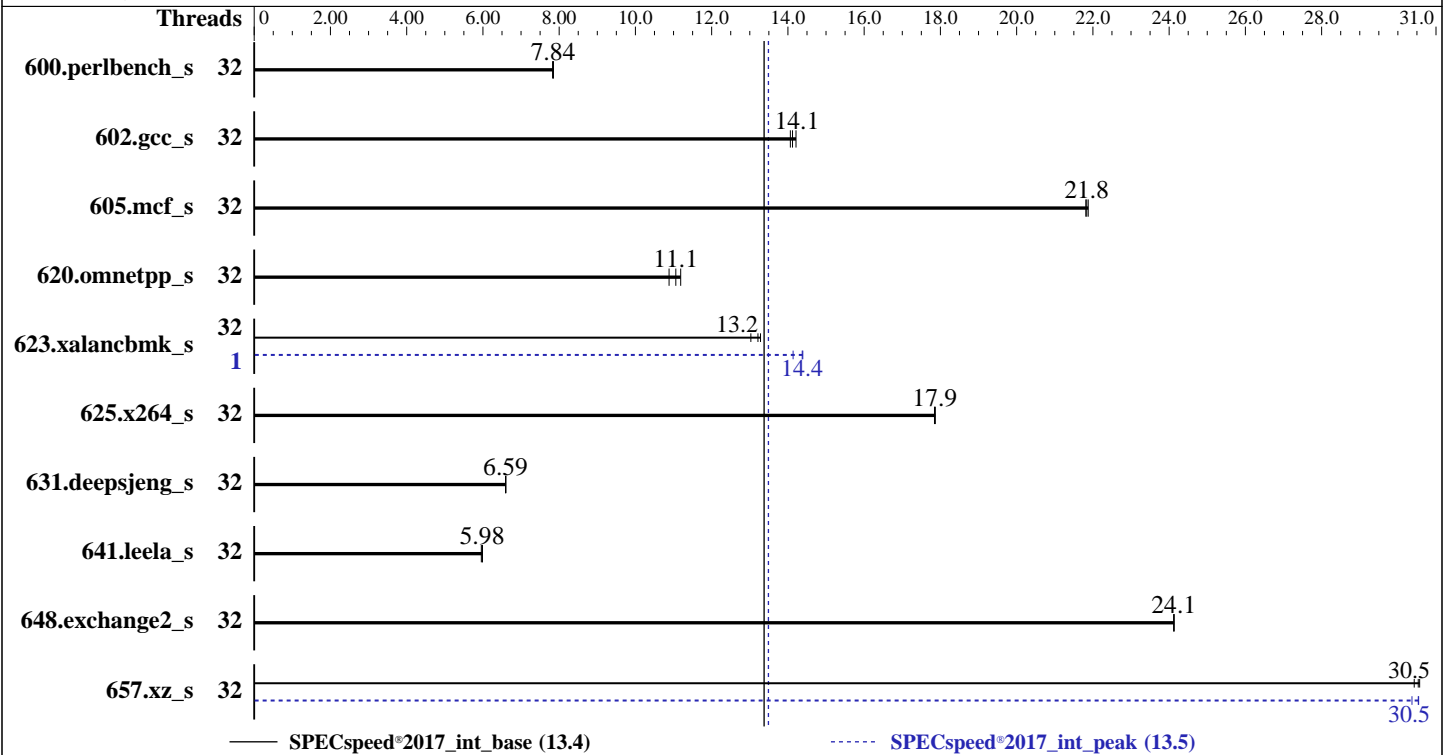
AMD EPYC 7373X

SPECspeed®2017\_int\_base = 13.4

SPECspeed®2017\_int\_peak = 13.5

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

Test Date: Apr-2022  
Hardware Availability: Mar-2022  
Software Availability: Jan-2022



### Hardware

CPU Name: AMD EPYC 7373X  
 Max MHz: 3800  
 Nominal: 3050  
 Enabled: 32 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: 768 MB I+D on chip per chip,  
 96 MB shared / 2 cores  
 Other: None  
 Memory: 2 TB (16 x 128 GB 4Rx4 PC4-3200AA-L)  
 Storage: 1 x 500 GB SAS SSD, RAID 0  
 Other: None

### Software

OS: Ubuntu 20.04.3 LTS (x86\_64)  
 Kernel 5.13.0-28-generic  
 Compiler: C/C++/Fortran: Version 3.2.0 of AOCC  
 Parallel: Yes  
 Firmware: HPE BIOS Version A42 v2.56 02/10/2022 released Feb-2022  
 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



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL365 Gen10 Plus v2

AMD EPYC 7373X

SPECspeed®2017\_int\_base = 13.4

SPECspeed®2017\_int\_peak = 13.5

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

Test Date: Apr-2022  
Hardware Availability: Mar-2022  
Software Availability: Jan-2022

## Results Table

Benchmark	Base							Peak						
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
600.perlbench_s	32	227	7.83	<b><u>226</u></b>	<b><u>7.84</u></b>	226	7.85	32	227	7.83	<b><u>226</u></b>	<b><u>7.84</u></b>	226	7.85
602.gcc_s	32	280	14.2	<b><u>282</u></b>	<b><u>14.1</u></b>	283	14.1	32	280	14.2	<b><u>282</u></b>	<b><u>14.1</u></b>	283	14.1
605.mcf_s	32	216	21.9	216	21.8	<b><u>216</u></b>	<b><u>21.8</u></b>	32	216	21.9	216	21.8	<b><u>216</u></b>	<b><u>21.8</u></b>
620.omnetpp_s	32	150	10.9	146	11.2	<b><u>147</u></b>	<b><u>11.1</u></b>	32	150	10.9	146	11.2	<b><u>147</u></b>	<b><u>11.1</u></b>
623.xalancbmk_s	32	109	13.0	107	13.3	<b><u>107</u></b>	<b><u>13.2</u></b>	1	<b><u>98.6</u></b>	<b><u>14.4</u></b>	100	14.1	98.5	14.4
625.x264_s	32	98.9	17.8	98.7	17.9	<b><u>98.8</u></b>	<b><u>17.9</u></b>	32	98.9	17.8	98.7	17.9	<b><u>98.8</u></b>	<b><u>17.9</u></b>
631.deepsjeng_s	32	<b><u>217</u></b>	<b><u>6.59</u></b>	217	6.59	217	6.60	32	<b><u>217</u></b>	<b><u>6.59</u></b>	217	6.59	217	6.60
641.leela_s	32	286	5.96	285	5.99	<b><u>285</u></b>	<b><u>5.98</u></b>	32	286	5.96	285	5.99	<b><u>285</u></b>	<b><u>5.98</u></b>
648.exchange2_s	32	<b><u>122</u></b>	<b><u>24.1</u></b>	122	24.1	122	24.1	32	<b><u>122</u></b>	<b><u>24.1</u></b>	122	24.1	122	24.1
657.xz_s	32	<b><u>202</u></b>	<b><u>30.5</u></b>	202	30.6	203	30.4	32	204	30.4	202	30.5	<b><u>202</u></b>	<b><u>30.5</u></b>

SPECspeed®2017\_int\_base = 13.4

SPECspeed®2017\_int\_peak = 13.5

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>

To limit dirty cache to 8% of memory, 'sysctl -w vm.dirty\_ratio=8' run as root.  
To limit swap usage to minimum necessary, 'sysctl -w vm.swappiness=1' run as root.  
To free node-local memory and avoid remote memory usage,  
'sysctl -w vm.zone\_reclaim\_mode=1' run as root.  
To clear filesystem caches, 'sync; sysctl -w vm.drop\_caches=3' run as root.  
To disable address space layout randomization (ASLR) to reduce run-to-run  
variability, 'sysctl -w kernel.randomize\_va\_space=0' run as root.

To enable Transparent Hugepages (THP) for all allocations,

(Continued on next page)



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

ProLiant DL365 Gen10 Plus v2

AMD EPYC 7373X

SPECspeed®2017\_int\_base = 13.4

SPECspeed®2017\_int\_peak = 13.5

**CPU2017 License:** 3

**Test Sponsor:** HPE

**Tested by:** HPE

**Test Date:** Apr-2022

**Hardware Availability:** Mar-2022

**Software Availability:** Jan-2022

## Operating System Notes (Continued)

```
'echo always > /sys/kernel/mm/transparent_hugepage/enabled' and  
'echo always > /sys/kernel/mm/transparent_hugepage/defrag' run as root.
```

## Environment Variables Notes

Environment variables set by runcpu before the start of the run:

```
GOMP_CPU_AFFINITY = "0-63"
```

```
LD_LIBRARY_PATH =
```

```
"/home/cpu2017_speed/amd_speed_aocc320_milanx_A_lib/lib;/home/cpu2017_sp  
eed/amd_speed_aocc320_milanx_A_lib/lib32:"
```

```
LIBOMP_NUM_HIDDEN_HELPER_THREADS = "0"
```

```
MALLOC_CONF = "retain:true"
```

```
OMP_DYNAMIC = "false"
```

```
OMP_SCHEDULE = "static"
```

```
OMP_STACKSIZE = "128M"
```

```
OMP_THREAD_LIMIT = "64"
```

Environment variables set by runcpu during the 623.xalancbmk\_s peak run:

```
GOMP_CPU_AFFINITY = "0"
```

Environment variables set by runcpu during the 657.xz\_s peak run:

```
GOMP_CPU_AFFINITY = "0-31"
```

```
LIBOMP_NUM_HIDDEN_HELPER_THREADS = "0"
```

## 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>



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

ProLiant DL365 Gen10 Plus v2

AMD EPYC 7373X

SPECspeed®2017\_int\_base = 13.4

SPECspeed®2017\_int\_peak = 13.5

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

**Test Date:** Apr-2022  
**Hardware Availability:** Mar-2022  
**Software Availability:** Jan-2022

## 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  
Infinity Fabric Power Management set to Disabled  
Infinity Fabric Performance State set to P0

Sysinfo program /home/cpu2017\_speed/bin/sysinfo  
Rev: r6622 of 2021-04-07 982a61ec0915b55891ef0e16acafc64d  
running on admin1-ProLiant-DL365-Gen10-Plus Mon Jan 10 10:34:15 2022

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 7373X 16-Core Processor
 2 "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 : 16
siblings : 32
physical 0: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
physical 1: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
```

### From lscpu from util-linux 2.34:

```
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: 16
Socket(s): 2
NUMA node(s): 16
Vendor ID: AuthenticAMD
CPU family: 25
Model: 1
Model name: AMD EPYC 7373X 16-Core Processor
Stepping: 2
CPU MHz: 3044.409
BogoMIPS: 6088.81
```

(Continued on next page)



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

ProLiant DL365 Gen10 Plus v2

AMD EPYC 7373X

SPECspeed®2017\_int\_base = 13.4

SPECspeed®2017\_int\_peak = 13.5

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

**Test Date:** Apr-2022  
**Hardware Availability:** Mar-2022  
**Software Availability:** Jan-2022

## Platform Notes (Continued)

```

Virtualization:          AMD-V
L1d cache:              1 MiB
L1i cache:              1 MiB
L2 cache:               16 MiB
L3 cache:               1.5 GiB
NUMA node0 CPU(s):     0,1,32,33
NUMA node1 CPU(s):     2,3,34,35
NUMA node2 CPU(s):     4,5,36,37
NUMA node3 CPU(s):     6,7,38,39
NUMA node4 CPU(s):     8,9,40,41
NUMA node5 CPU(s):     10,11,42,43
NUMA node6 CPU(s):     12,13,44,45
NUMA node7 CPU(s):     14,15,46,47
NUMA node8 CPU(s):     16,17,48,49
NUMA node9 CPU(s):     18,19,50,51
NUMA node10 CPU(s):    20,21,52,53
NUMA node11 CPU(s):    22,23,54,55
NUMA node12 CPU(s):    24,25,56,57
NUMA node13 CPU(s):    26,27,58,59
NUMA node14 CPU(s):    28,29,60,61
NUMA node15 CPU(s):    30,31,62,63
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 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 3dnowprefetch osvw ibs skinit wdt tce topoext perfctr_core perfctr_nb bpext perfctr_llc mwaitx cpb cat_l3 cdp_l3 invpcid_single hw_pstate ssbd mba ibrs ibpb stibp vmmcall fsgsbase bmi1 avx2 smep bmi2 invpcid cqm rdt_a rdseed adx smap clflushopt clwb sha_ni xsaveopt xsavec xgetbv1 xsaves cqm_llc cqm_occup_llc cqm_mbm_total cqm_mbm_local clzero irperf xsaveerptr rdpru wbnoinvd amd_ppin arat npt lbrv svm_lock nrip_save tsc_scale vmcb_clean flushbyasid decodeassists pausefilter pfthreshold v_vmsave_vmload vgif v_spec_ctrl umip pku ospke vaes vpcmlmulqdq rdpid overflow_recov succor smca

```

(Continued on next page)



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

ProLiant DL365 Gen10 Plus v2

AMD EPYC 7373X

SPECspeed®2017\_int\_base = 13.4

SPECspeed®2017\_int\_peak = 13.5

**CPU2017 License:** 3

**Test Sponsor:** HPE

**Tested by:** HPE

**Test Date:** Apr-2022

**Hardware Availability:** Mar-2022

**Software Availability:** Jan-2022

## Platform Notes (Continued)

From lscpu --cache:

NAME	ONE-SIZE	ALL-SIZE	WAYS	TYPE	LEVEL
L1d	32K	1M	8	Data	1
L1i	32K	1M	8	Instruction	1
L2	512K	16M	8	Unified	2
L3	96M	1.5G	16	Unified	3

```
/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: 16 nodes (0-15)
node 0 cpus: 0 1 32 33
node 0 size: 128711 MB
node 0 free: 128087 MB
node 1 cpus: 2 3 34 35
node 1 size: 129022 MB
node 1 free: 128933 MB
node 2 cpus: 4 5 36 37
node 2 size: 129022 MB
node 2 free: 128967 MB
node 3 cpus: 6 7 38 39
node 3 size: 129022 MB
node 3 free: 128947 MB
node 4 cpus: 8 9 40 41
node 4 size: 129022 MB
node 4 free: 128894 MB
node 5 cpus: 10 11 42 43
node 5 size: 129022 MB
node 5 free: 128905 MB
node 6 cpus: 12 13 44 45
node 6 size: 129022 MB
node 6 free: 128836 MB
node 7 cpus: 14 15 46 47
node 7 size: 116876 MB
node 7 free: 116829 MB
node 8 cpus: 16 17 48 49
node 8 size: 129022 MB
node 8 free: 128965 MB
node 9 cpus: 18 19 50 51
node 9 size: 129022 MB
node 9 free: 128947 MB
node 10 cpus: 20 21 52 53
node 10 size: 129022 MB
node 10 free: 128953 MB
node 11 cpus: 22 23 54 55
```

(Continued on next page)



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

ProLiant DL365 Gen10 Plus v2

AMD EPYC 7373X

SPECspeed®2017\_int\_base = 13.4

SPECspeed®2017\_int\_peak = 13.5

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

**Test Date:** Apr-2022  
**Hardware Availability:** Mar-2022  
**Software Availability:** Jan-2022

## Platform Notes (Continued)

```

node 11 size: 129022 MB
node 11 free: 128745 MB
node 12 cpus: 24 25 56 57
node 12 size: 129022 MB
node 12 free: 128909 MB
node 13 cpus: 26 27 58 59
node 13 size: 129022 MB
node 13 free: 128972 MB
node 14 cpus: 28 29 60 61
node 14 size: 129022 MB
node 14 free: 128930 MB
node 15 cpus: 30 31 62 63
node 15 size: 129015 MB
node 15 free: 128830 MB
node distances:
node  0  1  2  3  4  5  6  7  8  9 10 11 12 13 14 15
  0: 10 11 11 11 11 11 11 11 32 32 32 32 32 32 32 32
  1: 11 10 11 11 11 11 11 11 32 32 32 32 32 32 32 32
  2: 11 11 10 11 11 11 11 11 32 32 32 32 32 32 32 32
  3: 11 11 11 10 11 11 11 11 32 32 32 32 32 32 32 32
  4: 11 11 11 11 10 11 11 11 32 32 32 32 32 32 32 32
  5: 11 11 11 11 11 10 11 11 32 32 32 32 32 32 32 32
  6: 11 11 11 11 11 11 10 11 32 32 32 32 32 32 32 32
  7: 11 11 11 11 11 11 11 10 32 32 32 32 32 32 32 32
  8: 32 32 32 32 32 32 32 32 32 10 11 11 11 11 11 11
  9: 32 32 32 32 32 32 32 32 32 11 10 11 11 11 11 11
 10: 32 32 32 32 32 32 32 32 32 11 11 10 11 11 11 11
 11: 32 32 32 32 32 32 32 32 32 11 11 11 10 11 11 11
 12: 32 32 32 32 32 32 32 32 32 11 11 11 11 10 11 11
 13: 32 32 32 32 32 32 32 32 32 11 11 11 11 11 10 11
 14: 32 32 32 32 32 32 32 32 32 11 11 11 11 11 10 11
 15: 32 32 32 32 32 32 32 32 32 11 11 11 11 11 11 10

```

```

From /proc/meminfo
MemTotal:          2101144604 kB
HugePages_Total:      0
Hugepagesize:       2048 kB

/sbin/tuned-adm active
  Current active profile: throughput-performance

/usr/bin/lsb_release -d
  Ubuntu 20.04.3 LTS

From /etc/*release* /etc/*version*
  debian_version: bullseye/sid
  os-release:

```

(Continued on next page)



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

ProLiant DL365 Gen10 Plus v2

AMD EPYC 7373X

SPECspeed®2017\_int\_base = 13.4

SPECspeed®2017\_int\_peak = 13.5

**CPU2017 License:** 3

**Test Sponsor:** HPE

**Tested by:** HPE

**Test Date:** Apr-2022

**Hardware Availability:** Mar-2022

**Software Availability:** Jan-2022

## Platform Notes (Continued)

```

NAME="Ubuntu"
VERSION="20.04.3 LTS (Focal Fossa)"
ID=ubuntu
ID_LIKE=debian
PRETTY_NAME="Ubuntu 20.04.3 LTS"
VERSION_ID="20.04"
HOME_URL="https://www.ubuntu.com/"
SUPPORT_URL="https://help.ubuntu.com/"

```

uname -a:

```

Linux admin1-ProLiant-DL365-Gen10-Plus 5.13.0-28-generic #31~20.04.1-Ubuntu SMP Wed
Jan 19 14:08:10 UTC 2022 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
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 Jan 10 10:27

SPEC is set to: /home/cpu2017\_speed

```

Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda2       ext4  439G   46G  371G  12% /

```

From /sys/devices/virtual/dmi/id

```

Vendor:          HPE
Product:         ProLiant DL365 Gen10 Plus
Product Family: ProLiant
Serial:          CN70430NKR

```

Additional information from dmidecode 3.2 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.

(Continued on next page)





# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

ProLiant DL365 Gen10 Plus v2

AMD EPYC 7373X

SPECspeed®2017\_int\_base = 13.4

SPECspeed®2017\_int\_peak = 13.5

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

**Test Date:** Apr-2022  
**Hardware Availability:** Mar-2022  
**Software Availability:** Jan-2022

## Platform Notes (Continued)

### Memory:

9x Hynix HMABAGL7ABR4N-XN 128 GB 4 rank 3200  
7x Samsung M386AAG40AM3-CWE 128 GB 4 rank 3200  
16x UNKNOWN NOT AVAILABLE

### BIOS:

BIOS Vendor: HPE  
BIOS Version: A42  
BIOS Date: 02/10/2022  
BIOS Revision: 2.56  
Firmware Revision: 2.50

(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 13.0.0 (CLANG: AOCC\_3.2.0-Build#128 2021\_11\_12) (based on LLVM Mirror.Version.13.0.0)

Target: x86\_64-unknown-linux-gnu

Thread model: posix

InstalledDir: /opt/AMD/aocc-compiler-3.2.0/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 13.0.0 (CLANG: AOCC\_3.2.0-Build#128 2021\_11\_12) (based on LLVM Mirror.Version.13.0.0)

Target: x86\_64-unknown-linux-gnu

Thread model: posix

InstalledDir: /opt/AMD/aocc-compiler-3.2.0/bin  
-----

```
=====  
Fortran | 648.exchange2_s(base, peak)  
-----
```

AMD clang version 13.0.0 (CLANG: AOCC\_3.2.0-Build#128 2021\_11\_12) (based on LLVM Mirror.Version.13.0.0)

Target: x86\_64-unknown-linux-gnu

Thread model: posix

InstalledDir: /opt/AMD/aocc-compiler-3.2.0/bin

(Continued on next page)



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

ProLiant DL365 Gen10 Plus v2

AMD EPYC 7373X

SPECspeed®2017\_int\_base = 13.4

SPECspeed®2017\_int\_peak = 13.5

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

**Test Date:** Apr-2022  
**Hardware Availability:** Mar-2022  
**Software Availability:** Jan-2022

## Compiler Version Notes (Continued)

---

## 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 -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 -fopenmp -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=libomp -lomp -lamdlibm -ljemalloc -lflang

(Continued on next page)



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

ProLiant DL365 Gen10 Plus v2

AMD EPYC 7373X

SPECspeed®2017\_int\_base = 13.4

SPECspeed®2017\_int\_peak = 13.5

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

**Test Date:** Apr-2022  
**Hardware Availability:** Mar-2022  
**Software Availability:** Jan-2022

## Base Optimization Flags (Continued)

C++ benchmarks:

```
-m64 -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 -fopenmp -flto
-mllvm -enable-partial-unswitch -mllvm -unroll-threshold=100
-finline-aggressive -flv-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
-fvirtual-function-elimination -fvisibility=hidden -DSPEC_OPENMP
-fopenmp=libomp -lomp -lamdlibm -ljemalloc -lflang
```

Fortran benchmarks:

```
-m64 -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 -fopenmp -flto -z muldefs
-mllvm -unroll-aggressive -mllvm -unroll-threshold=150 -DSPEC_OPENMP
-fopenmp=libomp -lomp -lamdlibm -ljemalloc -lflang
```

## 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
```

(Continued on next page)



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

ProLiant DL365 Gen10 Plus v2

AMD EPYC 7373X

SPECspeed®2017\_int\_base = 13.4

SPECspeed®2017\_int\_peak = 13.5

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

**Test Date:** Apr-2022  
**Hardware Availability:** Mar-2022  
**Software Availability:** Jan-2022

## 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 -Wl,-allow-multiple-definition  
-Wl,-mllvm -Wl,-enable-licm-vrp  
-Wl,-mllvm -Wl,-do-block-reorder=aggressive  
-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 -Ofast  
-march=znver3 -fveclib=AMDLIBM -ffast-math -fopenmp  
-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  
-mllvm -do-block-reorder=aggressive -DSPEC\_OPENMP  
-fopenmp=libomp -lomp -lamdlibm -ljemalloc -lflang

C++ benchmarks:

620.omnetpp\_s: basepeak = yes

(Continued on next page)



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

ProLiant DL365 Gen10 Plus v2

AMD EPYC 7373X

SPECspeed®2017\_int\_base = 13.4

SPECspeed®2017\_int\_peak = 13.5

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

**Test Date:** Apr-2022  
**Hardware Availability:** Mar-2022  
**Software Availability:** Jan-2022

## Peak Optimization Flags (Continued)

```
623.xalancbmk_s: -m64 -Wl,-mllvm -Wl,-function-specialize
-Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-do-block-reorder=aggressive -Ofast
-march=znver3 -fveclib=AMDLIBM -ffast-math -fopenmp
-flto -finline-aggressive -mllvm -unroll-threshold=100
-flv-function-specialization -mllvm -enable-licm-vrp
-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
-DSPEC_OPENMP -fopenmp=libomp -lomp -lamdlibm -ljemalloc
-lflang
```

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-revR.html>

<http://www.spec.org/cpu2017/flags/aocc320-flags-A1.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-revR.xml>

<http://www.spec.org/cpu2017/flags/aocc320-flags-A1.xml>



# SPEC CPU<sup>®</sup>2017 Integer Speed Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

ProLiant DL365 Gen10 Plus v2

AMD EPYC 7373X

SPECspeed<sup>®</sup>2017\_int\_base = 13.4

SPECspeed<sup>®</sup>2017\_int\_peak = 13.5

**CPU2017 License:** 3

**Test Sponsor:** HPE

**Tested by:** HPE

**Test Date:** Apr-2022

**Hardware Availability:** Mar-2022

**Software Availability:** Jan-2022

SPEC CPU and SPECspeed are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

For questions about this result, please contact the tester. For other inquiries, please contact [info@spec.org](mailto:info@spec.org).

Tested with SPEC CPU<sup>®</sup>2017 v1.1.8 on 2022-01-10 00:04:14-0500.

Report generated on 2022-05-25 13:10:49 by CPU2017 PDF formatter v6442.

Originally published on 2022-05-24.