



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

## Hewlett Packard Enterprise

(Test Sponsor: HPE)

### ProLiant DL365 Gen11

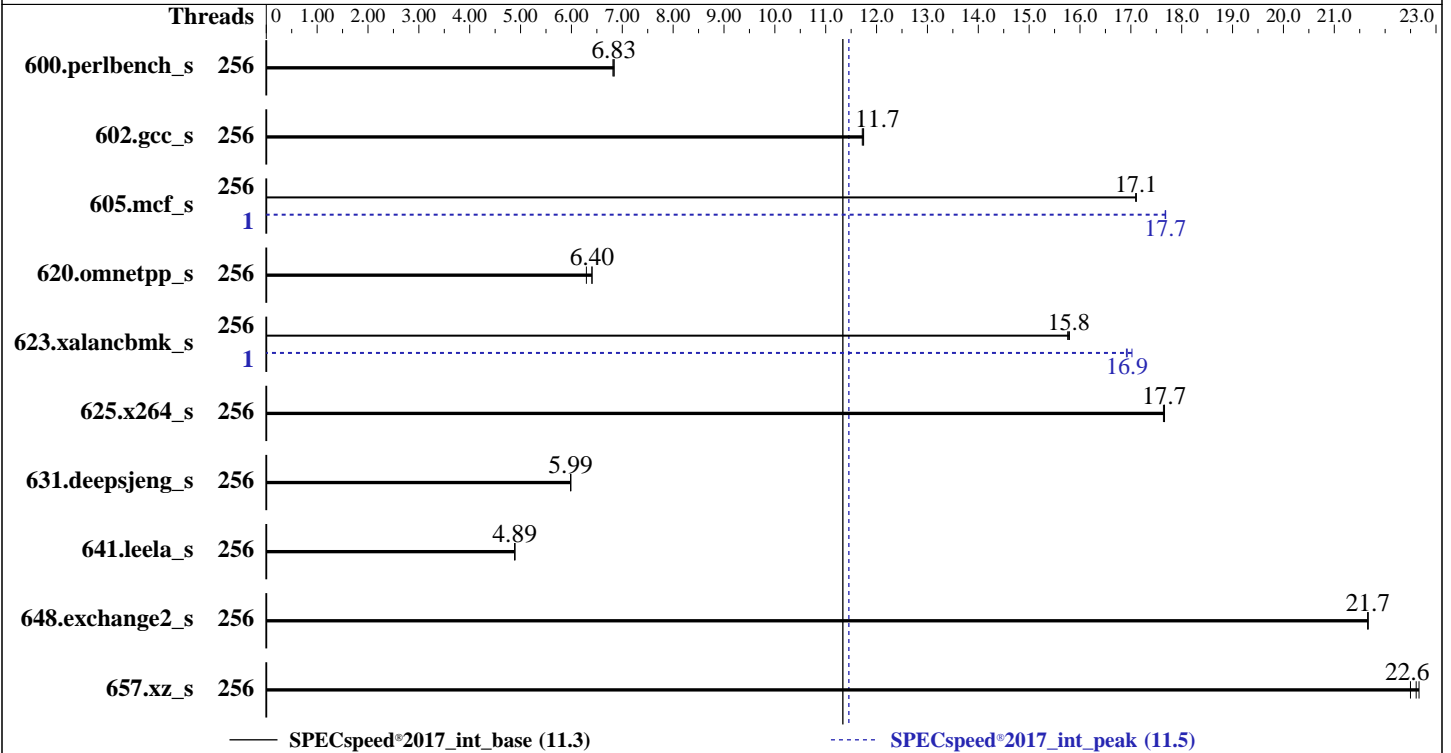
(2.25 GHz, AMD EPYC 9754)

SPECspeed®2017\_int\_base = 11.3

SPECspeed®2017\_int\_peak = 11.5

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

Test Date: May-2023  
Hardware Availability: Jun-2023  
Software Availability: Nov-2022



### Hardware

CPU Name: AMD EPYC 9754  
 Max MHz: 3100  
 Nominal: 2250  
 Enabled: 256 cores, 2 chips  
 Orderable: 1,2 chips  
 Cache L1: 32 KB I + 32 KB D on chip per core  
 L2: 1 MB I+D on chip per core  
 L3: 256 MB I+D on chip per chip,  
 16 MB shared / 8 cores  
 Other: None  
 Memory: 1536 GB (24 x 64 GB 2Rx4 PC5-4800B-R)  
 Storage: 1 x 480 GB SATA SSD  
 Other: None

### Software

OS: Red Hat Enterprise Linux 9.0 (Plow)  
 Kernel 5.14.0-70.13.1.el9\_0.x86\_64  
 Compiler: C/C++/Fortran: Version 4.0.0 of AOCC  
 Parallel: Yes  
 Firmware: HPE BIOS Version v1.30 03/06/2023 released  
 Mar-2023  
 File System: xfs  
 System State: Run level 3 (multi-user)  
 Base Pointers: 64-bit  
 Peak Pointers: 64-bit  
 Other: None  
 Power Management: BIOS and OS set to prefer performance at  
 the cost of additional power usage



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

## Hewlett Packard Enterprise

(Test Sponsor: HPE)

### ProLiant DL365 Gen11

(2.25 GHz, AMD EPYC 9754)

SPECspeed®2017\_int\_base = 11.3

SPECspeed®2017\_int\_peak = 11.5

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

Test Date: May-2023  
Hardware Availability: Jun-2023  
Software Availability: Nov-2022

## Results Table

Benchmark	Base							Peak						
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
600.perlbench_s	256	<b>260</b>	<b>6.83</b>	260	6.82	260	6.84	256	<b>260</b>	<b>6.83</b>	260	6.82	260	6.84
602.gcc_s	256	340	11.7	339	11.7	<b>339</b>	<b>11.7</b>	256	340	11.7	339	11.7	<b>339</b>	<b>11.7</b>
605.mcf_s	256	<b>276</b>	<b>17.1</b>	276	17.1	276	17.1	1	267	17.7	267	17.7	<b>267</b>	<b>17.7</b>
620.omnetpp_s	256	255	6.40	259	6.29	<b>255</b>	<b>6.40</b>	256	255	6.40	259	6.29	<b>255</b>	<b>6.40</b>
623.xalancbmk_s	256	89.7	15.8	89.9	15.8	<b>89.8</b>	<b>15.8</b>	1	<b>83.7</b>	<b>16.9</b>	83.8	16.9	83.2	17.0
625.x264_s	256	<b>99.9</b>	<b>17.7</b>	100	17.6	99.9	17.7	256	<b>99.9</b>	<b>17.7</b>	100	17.6	99.9	17.7
631.deepsjeng_s	256	<b>239</b>	<b>5.99</b>	239	5.99	240	5.98	256	<b>239</b>	<b>5.99</b>	239	5.99	240	5.98
641.leela_s	256	349	4.89	349	4.88	<b>349</b>	<b>4.89</b>	256	349	4.89	349	4.88	<b>349</b>	<b>4.89</b>
648.exchange2_s	256	<b>136</b>	<b>21.7</b>	136	21.7	136	21.7	256	<b>136</b>	<b>21.7</b>	136	21.7	136	21.7
657.xz_s	256	<b>273</b>	<b>22.6</b>	275	22.5	273	22.7	256	<b>273</b>	<b>22.6</b>	275	22.5	273	22.7

SPECspeed®2017\_int\_base = **11.3**

SPECspeed®2017\_int\_peak = **11.5**

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,  
'echo always > /sys/kernel/mm/transparent\_hugepage/enabled' and  
'echo always > /sys/kernel/mm/transparent\_hugepage/defrag' run as root.



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

**ProLiant DL365 Gen11**

(2.25 GHz, AMD EPYC 9754)

SPECspeed®2017\_int\_base = 11.3

SPECspeed®2017\_int\_peak = 11.5

**CPU2017 License:** 3

**Test Sponsor:** HPE

**Tested by:** HPE

**Test Date:** May-2023

**Hardware Availability:** Jun-2023

**Software Availability:** Nov-2022

## Environment Variables Notes

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

```
GOMP_CPU_AFFINITY = "0-255"
LD_LIBRARY_PATH = "/home/cpu2017/amd_speed_aocc400_genoa_B_lib/lib:"
LIBOMP_NUM_HIDDEN_HELPER_THREADS = "0"
MALLOC_CONF = "oversize_threshold:0,retain:true"
OMP_DYNAMIC = "false"
OMP_SCHEDULE = "static"
OMP_STACKSIZE = "128M"
OMP_THREAD_LIMIT = "256"
```

Environment variables set by runcpu during the 605.mcf\_s peak run:

```
GOMP_CPU_AFFINITY = "15"
```

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

```
GOMP_CPU_AFFINITY = "15"
```

## General Notes

Binaries were compiled on a system with 2x AMD EPYC 9174F CPU + 1.5TiB Memory using RHEL 8.6

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.

## Platform Notes

BIOS Configuration

```
Workload Profile set to General Peak Frequency Compute
Determinism Control set to Manual
Performance Determinism set to Power Deterministic
AMD SMT Option set to Disabled
NUMA memory domains per socket set to Four memory domains per socket
Last-Level Cache (LLC) as NUMA Node set to Enabled
ACPI CST C2 Latency set to 18 microseconds
Thermal Configuration set to Maximum Cooling
Workload Profile set to Custom
Power Regulator set to OS Control Mode
```

```
Sysinfo program /home/cpu2017/bin/sysinfo
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
running on localhost.localdomain Thu Apr 7 06:22:07 2022
```

SUT (System Under Test) info as seen by some common utilities.

-----  
Table of contents  
-----

1. uname -a
2. w
3. Username
4. ulimit -a
5. sysinfo process ancestry
6. /proc/cpuinfo

(Continued on next page)



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

**ProLiant DL365 Gen11**

(2.25 GHz, AMD EPYC 9754)

SPECspeed®2017\_int\_base = 11.3

SPECspeed®2017\_int\_peak = 11.5

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

**Test Date:** May-2023  
**Hardware Availability:** Jun-2023  
**Software Availability:** Nov-2022

## Platform Notes (Continued)

```

7. lscpu
8. numactl --hardware
9. /proc/meminfo
10. who -r
11. Systemd service manager version: systemd 250 (250-6.e19_0)
12. Services, from systemctl list-unit-files
13. Linux kernel boot-time arguments, from /proc/cmdline
14. cpupower frequency-info
15. tuned-adm active
16. sysctl
17. /sys/kernel/mm/transparent_hugepage
18. /sys/kernel/mm/transparent_hugepage/khugepaged
19. OS release
20. Disk information
21. /sys/devices/virtual/dmi/id
22. dmidecode
23. BIOS

```

```

-----
1. uname -a
Linux localhost.localdomain 5.14.0-70.13.1.e19_0.x86_64 #1 SMP PREEMPT Thu Apr 14 12:42:38 EDT 2022 x86_64
x86_64 x86_64 GNU/Linux

```

```

-----
2. w
 06:22:07 up 52 min,  1 user,  load average: 0.26, 0.06, 0.02
USER      TTY      LOGIN@  IDLE   JCPU   PCPU   WHAT
root     pts/0    06:19   38.00s  1.15s  0.07s  /bin/bash ./amd_speed_aocc400_genoa_B1.sh

```

```

-----
3. Username
From environment variable $USER:  root

```

```

-----
4. ulimit -a
real-time non-blocking time (microseconds, -R) unlimited
core file size              (blocks, -c) 0
data seg size                (kbytes, -d) unlimited
scheduling priority         (-e) 0
file size                    (blocks, -f) unlimited
pending signals              (-i) 6191076
max locked memory            (kbytes, -l) 2097152
max memory size              (kbytes, -m) unlimited
open files                   (-n) 1024
pipe size                    (512 bytes, -p) 8
POSIX message queues         (bytes, -q) 819200
real-time priority           (-r) 0
stack size                   (kbytes, -s) unlimited
cpu time                     (seconds, -t) unlimited
max user processes           (-u) 6191076
virtual memory                (kbytes, -v) unlimited
file locks                   (-x) unlimited

```

```

-----
5. sysinfo process ancestry
/usr/lib/systemd/systemd --switched-root --system --deserialize 28
sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups
sshd: root [priv]
sshd: root@pts/0

```

(Continued on next page)



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

## Hewlett Packard Enterprise

(Test Sponsor: HPE)

### ProLiant DL365 Gen11

(2.25 GHz, AMD EPYC 9754)

SPECspeed®2017\_int\_base = 11.3

SPECspeed®2017\_int\_peak = 11.5

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

**Test Date:** May-2023  
**Hardware Availability:** Jun-2023  
**Software Availability:** Nov-2022

## Platform Notes (Continued)

```
-bash
python3 ./run_intspeed.py
/bin/bash ./amd_speed_aocc400_genoa_B1.sh
runcpu --config amd_speed_aocc400_genoa_B1.cfg --tune all --reportable --iterations 3 intspeed
runcpu --configfile amd_speed_aocc400_genoa_B1.cfg --tune all --reportable --iterations 3 --nopower
--runmode speed --tune base:peak --size test:train:refspeed intspeed --nopreenv --note-preenv --logfile
$SPEC/tmp/CPU2017.008/templogs/preenv.intspeed.008.0.log --lognum 008.0 --from_runcpu 2
specperl $SPEC/bin/sysinfo
$SPEC = /home/cpu2017
```

```
6. /proc/cpuinfo
model name      : AMD EPYC 9754 128-Core Processor
vendor_id      : AuthenticAMD
cpu family     : 25
model          : 160
stepping       : 2
bugs           : sysret_ss_attrs spectre_v1 spectre_v2 spec_store_bypass
TLB size      : 3584 4K pages
cpu cores     : 128
siblings       : 128
2 physical ids (chips)
256 processors (hardware threads)
physical id 0: core ids
0-7,16-23,32-39,48-55,64-71,80-87,96-103,112-119,128-135,144-151,160-167,176-183,192-199,208-215,224-231,
240-247
physical id 1: core ids
0-7,16-23,32-39,48-55,64-71,80-87,96-103,112-119,128-135,144-151,160-167,176-183,192-199,208-215,224-231,
240-247
physical id 0: apicids
0-7,16-23,32-39,48-55,64-71,80-87,96-103,112-119,128-135,144-151,160-167,176-183,192-199,208-215,224-231,
240-247
physical id 1: apicids
256-263,272-279,288-295,304-311,320-327,336-343,352-359,368-375,384-391,400-407,416-423,432-439,448-455,4
64-471,480-487,496-503
```

Caution: /proc/cpuinfo data regarding chips, cores, and threads is not necessarily reliable, especially for virtualized systems. Use the above data carefully.

### 7. lscpu

From lscpu from util-linux 2.37.4:

```
Architecture:      x86_64
CPU op-mode(s):    32-bit, 64-bit
Address sizes:     52 bits physical, 57 bits virtual
Byte Order:       Little Endian
CPU(s):           256
On-line CPU(s) list: 0-255
Vendor ID:        AuthenticAMD
BIOS Vendor ID:   Advanced Micro Devices, Inc.
Model name:       AMD EPYC 9754 128-Core Processor
BIOS Model name:  AMD EPYC 9754 128-Core Processor
CPU family:       25
Model:            160
Thread(s) per core: 1
Core(s) per socket: 128
Socket(s):        2
Stepping:         2
Frequency boost:   enabled
CPU max MHz:      2250.0000
```

(Continued on next page)



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

## Hewlett Packard Enterprise

(Test Sponsor: HPE)

### ProLiant DL365 Gen11

(2.25 GHz, AMD EPYC 9754)

SPECspeed®2017\_int\_base = 11.3

SPECspeed®2017\_int\_peak = 11.5

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

**Test Date:** May-2023  
**Hardware Availability:** Jun-2023  
**Software Availability:** Nov-2022

## Platform Notes (Continued)

```

CPU min MHz:          1500.0000
BogoMIPS:             4493.33
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 rapl
                    pni pclmulqdq monitor ssse3 fma cx16 pcid sse4_1 sse4_2 x2apic 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 erms invpcid cqm rdt_a avx512f avx512dq rdseed adx smap
                    avx512ifma clflushopt clwb avx512cd sha_ni avx512bw avx512vl xsaveopt
                    xsavec xgetbv1 xsaves cqm_llc cqm_occup_llc cqm_mbm_total cqm_mbm_local
                    avx512_bf16 clzero irperf xsaveerptr rdpru wbnoinvd amd_ppin arat npt lbrv
                    svm_lock nrip_save tsc_scale vmcb_clean flushbyasid decodeassists
                    pausefilter pfthreshold avic v_vmsave_vmload vgif v_spec_ctrl avx512vbmi
                    umip pku ospke avx512_vbmi2 gfni vaes vpclmulqdq avx512_vnni avx512_bitalg
                    avx512_vpopcntdq la57 rdpid overflow_recov succor smca fsrm flush_lld
Virtualization:      AMD-V
L1d cache:          8 MiB (256 instances)
L1i cache:          8 MiB (256 instances)
L2 cache:           256 MiB (256 instances)
L3 cache:           512 MiB (32 instances)
NUMA node(s):       32
NUMA node0 CPU(s): 0-7
NUMA node1 CPU(s): 8-15
NUMA node2 CPU(s): 64-71
NUMA node3 CPU(s): 72-79
NUMA node4 CPU(s): 32-39
NUMA node5 CPU(s): 40-47
NUMA node6 CPU(s): 96-103
NUMA node7 CPU(s): 104-111
NUMA node8 CPU(s): 48-55
NUMA node9 CPU(s): 56-63
NUMA node10 CPU(s): 112-119
NUMA node11 CPU(s): 120-127
NUMA node12 CPU(s): 16-23
NUMA node13 CPU(s): 24-31
NUMA node14 CPU(s): 80-87
NUMA node15 CPU(s): 88-95
NUMA node16 CPU(s): 128-135
NUMA node17 CPU(s): 136-143
NUMA node18 CPU(s): 192-199
NUMA node19 CPU(s): 200-207
NUMA node20 CPU(s): 160-167
NUMA node21 CPU(s): 168-175
NUMA node22 CPU(s): 224-231
NUMA node23 CPU(s): 232-239
NUMA node24 CPU(s): 176-183
NUMA node25 CPU(s): 184-191
NUMA node26 CPU(s): 240-247
NUMA node27 CPU(s): 248-255
NUMA node28 CPU(s): 144-151
NUMA node29 CPU(s): 152-159
NUMA node30 CPU(s): 208-215
NUMA node31 CPU(s): 216-223
Vulnerability Itlb multihit: Not affected
Vulnerability L1tf:         Not affected
Vulnerability Mds:          Not affected
Vulnerability Meltdown:     Not affected

```

(Continued on next page)



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

## Hewlett Packard Enterprise

(Test Sponsor: HPE)

### ProLiant DL365 Gen11

(2.25 GHz, AMD EPYC 9754)

SPECspeed®2017\_int\_base = 11.3

SPECspeed®2017\_int\_peak = 11.5

**CPU2017 License:** 3

**Test Sponsor:** HPE

**Tested by:** HPE

**Test Date:** May-2023

**Hardware Availability:** Jun-2023

**Software Availability:** Nov-2022

## Platform Notes (Continued)

Vulnerability Spec store bypass: Mitigation; Speculative Store Bypass disabled via prctl  
 Vulnerability Spectre v1: Mitigation; usercopy/swaps barriers and \_\_user pointer sanitization  
 Vulnerability Spectre v2: Mitigation; Retpolines, IBPB conditional, IBRS\_FW, STIBP disabled, RSB filling  
 Vulnerability Srbds: Not affected  
 Vulnerability Tsx async abort: Not affected

From lscpu --cache:

NAME	ONE-SIZE	ALL-SIZE	WAYS	TYPE	LEVEL	SETS	PHY-LINE	COHERENCY-SIZE
L1d	32K	8M	8	Data	1	64	1	64
L1i	32K	8M	8	Instruction	1	64	1	64
L2	1M	256M	8	Unified	2	2048	1	64
L3	16M	512M	16	Unified	3	16384	1	64

8. numactl --hardware

NOTE: a numactl 'node' might or might not correspond to a physical chip.

available: 32 nodes (0-31)

```
node 0 cpus: 0-7
node 0 size: 48135 MB
node 0 free: 47761 MB
node 1 cpus: 8-15
node 1 size: 48382 MB
node 1 free: 48195 MB
node 2 cpus: 64-71
node 2 size: 48382 MB
node 2 free: 47982 MB
node 3 cpus: 72-79
node 3 size: 48382 MB
node 3 free: 48205 MB
node 4 cpus: 32-39
node 4 size: 48382 MB
node 4 free: 48201 MB
node 5 cpus: 40-47
node 5 size: 48382 MB
node 5 free: 48229 MB
node 6 cpus: 96-103
node 6 size: 48382 MB
node 6 free: 48227 MB
node 7 cpus: 104-111
node 7 size: 48382 MB
node 7 free: 48264 MB
node 8 cpus: 48-55
node 8 size: 48382 MB
node 8 free: 47989 MB
node 9 cpus: 56-63
node 9 size: 48382 MB
node 9 free: 48189 MB
node 10 cpus: 112-119
node 10 size: 48382 MB
node 10 free: 48179 MB
node 11 cpus: 120-127
node 11 size: 48382 MB
node 11 free: 48173 MB
node 12 cpus: 16-23
node 12 size: 48382 MB
node 12 free: 48194 MB
node 13 cpus: 24-31
node 13 size: 48382 MB
node 13 free: 48200 MB
```

(Continued on next page)



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

**ProLiant DL365 Gen11**

(2.25 GHz, AMD EPYC 9754)

SPECspeed®2017\_int\_base = 11.3

SPECspeed®2017\_int\_peak = 11.5

**CPU2017 License:** 3

**Test Sponsor:** HPE

**Tested by:** HPE

**Test Date:** May-2023

**Hardware Availability:** Jun-2023

**Software Availability:** Nov-2022

## Platform Notes (Continued)

```

node 14 cpus: 80-87
node 14 size: 48382 MB
node 14 free: 48303 MB
node 15 cpus: 88-95
node 15 size: 48382 MB
node 15 free: 48200 MB
node 16 cpus: 128-135
node 16 size: 48345 MB
node 16 free: 47990 MB
node 17 cpus: 136-143
node 17 size: 48382 MB
node 17 free: 48274 MB
node 18 cpus: 192-199
node 18 size: 48382 MB
node 18 free: 48304 MB
node 19 cpus: 200-207
node 19 size: 48382 MB
node 19 free: 48164 MB
node 20 cpus: 160-167
node 20 size: 48382 MB
node 20 free: 48242 MB
node 21 cpus: 168-175
node 21 size: 48382 MB
node 21 free: 48277 MB
node 22 cpus: 224-231
node 22 size: 48382 MB
node 22 free: 48178 MB
node 23 cpus: 232-239
node 23 size: 48382 MB
node 23 free: 48235 MB
node 24 cpus: 176-183
node 24 size: 48382 MB
node 24 free: 48238 MB
node 25 cpus: 184-191
node 25 size: 48382 MB
node 25 free: 48296 MB
node 26 cpus: 240-247
node 26 size: 48382 MB
node 26 free: 48290 MB
node 27 cpus: 248-255
node 27 size: 48382 MB
node 27 free: 48190 MB
node 28 cpus: 144-151
node 28 size: 48382 MB
node 28 free: 48275 MB
node 29 cpus: 152-159
node 29 size: 48382 MB
node 29 free: 48297 MB
node 30 cpus: 208-215
node 30 size: 48382 MB
node 30 free: 48287 MB
node 31 cpus: 216-223
node 31 size: 48309 MB
node 31 free: 48159 MB
node distances:
node 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
0: 10 11 11 11 12 12 12 12 12 12 12 12 12 12 12 32 32 32 32 32 32 32 32 32
32 32 32 32 32 32 32
1: 11 10 11 11 12 12 12 12 12 12 12 12 12 12 12 32 32 32 32 32 32 32 32 32

```

(Continued on next page)





# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

## Hewlett Packard Enterprise

(Test Sponsor: HPE)

### ProLiant DL365 Gen11

(2.25 GHz, AMD EPYC 9754)

SPECspeed®2017\_int\_base = 11.3

SPECspeed®2017\_int\_peak = 11.5

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

**Test Date:** May-2023  
**Hardware Availability:** Jun-2023  
**Software Availability:** Nov-2022

## Platform Notes (Continued)

```

32 32 32 32 32 32 32
2: 11 11 10 11 12 12 12 12 12 12 12 12 12 12 12 12 32 32 32 32 32 32 32 32
32 32 32 32 32 32 32
3: 11 11 11 10 12 12 12 12 12 12 12 12 12 12 12 12 32 32 32 32 32 32 32 32
32 32 32 32 32 32 32
4: 12 12 12 12 10 11 11 11 12 12 12 12 12 12 12 12 12 32 32 32 32 32 32 32 32
32 32 32 32 32 32 32
5: 12 12 12 12 11 10 11 11 12 12 12 12 12 12 12 12 12 32 32 32 32 32 32 32 32
32 32 32 32 32 32 32
6: 12 12 12 12 11 11 10 11 12 12 12 12 12 12 12 12 12 32 32 32 32 32 32 32 32
32 32 32 32 32 32 32
7: 12 12 12 12 11 11 11 10 12 12 12 12 12 12 12 12 12 32 32 32 32 32 32 32 32
32 32 32 32 32 32 32
8: 12 12 12 12 12 12 12 12 12 10 11 11 11 12 12 12 12 32 32 32 32 32 32 32 32
32 32 32 32 32 32 32
9: 12 12 12 12 12 12 12 12 12 12 11 10 11 11 12 12 12 12 32 32 32 32 32 32 32
32 32 32 32 32 32 32
10: 12 12 12 12 12 12 12 12 12 12 11 11 10 11 12 12 12 12 32 32 32 32 32 32 32
32 32 32 32 32 32 32
11: 12 12 12 12 12 12 12 12 12 12 11 11 11 10 12 12 12 12 32 32 32 32 32 32 32
32 32 32 32 32 32 32
12: 12 12 12 12 12 12 12 12 12 12 12 12 10 11 11 11 32 32 32 32 32 32 32 32
32 32 32 32 32 32 32
13: 12 12 12 12 12 12 12 12 12 12 12 12 11 10 11 11 32 32 32 32 32 32 32 32
32 32 32 32 32 32 32
14: 12 12 12 12 12 12 12 12 12 12 12 12 11 11 10 11 32 32 32 32 32 32 32 32
32 32 32 32 32 32 32
15: 12 12 12 12 12 12 12 12 12 12 12 12 12 11 11 11 10 32 32 32 32 32 32 32
32 32 32 32 32 32 32
16: 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32 10 11 11 11 12 12 12 12
12 12 12 12 12 12
17: 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32 11 10 11 11 12 12 12 12
12 12 12 12 12 12
18: 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32 11 11 10 11 12 12 12 12
12 12 12 12 12 12
19: 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32 11 11 11 10 12 12 12 12
12 12 12 12 12 12
20: 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32 12 12 12 12 10 11 11 12
12 12 12 12 12 12
21: 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32 12 12 12 12 11 10 11 12
12 12 12 12 12 12
22: 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32 12 12 12 12 11 11 10 12
12 12 12 12 12 12
23: 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32 12 12 12 12 11 11 11 12
12 12 12 12 12 12
24: 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32 12 12 12 12 12 12 12 10
11 11 11 12 12 12
25: 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32 12 12 12 12 12 12 12 11
10 11 11 12 12 12
26: 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32 12 12 12 12 12 12 12 11
11 10 11 12 12 12
27: 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32 12 12 12 12 12 12 12 11
11 11 10 12 12 12
28: 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32 12 12 12 12 12 12 12 12
12 12 12 10 11 11
29: 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32 12 12 12 12 12 12 12 12
12 12 12 11 10 11
30: 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32 12 12 12 12 12 12 12 12
12 12 12 11 11 10
31: 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32 12 12 12 12 12 12 12 12

```

(Continued on next page)



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

## Hewlett Packard Enterprise

(Test Sponsor: HPE)

### ProLiant DL365 Gen11

(2.25 GHz, AMD EPYC 9754)

SPECspeed®2017\_int\_base = 11.3

SPECspeed®2017\_int\_peak = 11.5

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

**Test Date:** May-2023  
**Hardware Availability:** Jun-2023  
**Software Availability:** Nov-2022

## Platform Notes (Continued)

12 12 12 11 11 11 10

9. /proc/meminfo  
MemTotal: 1585022460 kB

10. who -r  
run-level 3 Apr 7 05:30

11. Systemd service manager version: systemd 250 (250-6.el9\_0)  
Default Target Status  
multi-user running

12. Services, from systemctl list-unit-files

STATE	UNIT FILES
enabled	NetworkManager NetworkManager-dispatcher NetworkManager-wait-online auditd chronyd crond dbus-broker firewalld getty@ irqbalance kdump lvm2-monitor mdmonitor microcode nis-domainname rhsmcertd rsyslog selinux-autorelabel-mark sshd sssd systemd-network-generator tuned udisks2 upower
enabled-runtime	systemd-remount-fs
disabled	blk-availability canberra-system-bootup canberra-system-shutdown canberra-system-shutdown-reboot chrony-wait console-getty cpupower debug-shell hwloc-dump-hwdata kvm_stat man-db-restart-cache-update nftables rdisc rhsm rhsm-facts rpmdb-rebuild serial-getty@ sshd-keygen@ systemd-boot-check-no-failures systemd-pstore systemd-sysex
indirect	sssd-autofs sssd-kcm sssd-nss sssd-pac sssd-pam sssd-ssh sssd-sudo

13. Linux kernel boot-time arguments, from /proc/cmdline  
BOOT\_IMAGE=(hd0,gpt2)/vmlinuz-5.14.0-70.13.1.el9\_0.x86\_64  
root=/dev/mapper/rhel-root  
ro  
resume=/dev/mapper/rhel-swap  
rd.lvm.lv=rhel/root  
rd.lvm.lv=rhel/swap

14. cpupower frequency-info  
analyzing CPU 0:  
current policy: frequency should be within 1.50 GHz and 2.25 GHz.  
The governor "performance" may decide which speed to use  
within this range.  
boost state support:  
Supported: yes  
Active: yes  
Boost States: 0  
Total States: 3  
Pstate-P0: 2250MHz

15. tuned-adm active  
Current active profile: throughput-performance

16. sysctl  
kernel.numa\_balancing 1  
kernel.randomize\_va\_space 0

(Continued on next page)



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

## Hewlett Packard Enterprise

(Test Sponsor: HPE)

### ProLiant DL365 Gen11

(2.25 GHz, AMD EPYC 9754)

SPECspeed®2017\_int\_base = 11.3

SPECspeed®2017\_int\_peak = 11.5

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

**Test Date:** May-2023  
**Hardware Availability:** Jun-2023  
**Software Availability:** Nov-2022

## Platform Notes (Continued)

```

vm.compaction_proactiveness      20
vm.dirty_background_bytes        0
vm.dirty_background_ratio        10
vm.dirty_bytes                   0
vm.dirty_expire_centisecs        3000
vm.dirty_ratio                   8
vm.dirty_writeback_centisecs     500
vm.dirtytime_expire_seconds      43200
vm.extfrag_threshold             500
vm.min_unmapped_ratio            1
vm.nr_hugepages                  0
vm.nr_hugepages_mempolicy        0
vm.nr_overcommit_hugepages       0
vm.swappiness                     1
vm.watermark_boost_factor        15000
vm.watermark_scale_factor        10
vm.zone_reclaim_mode             1

```

```

-----
17. /sys/kernel/mm/transparent_hugepage
defrag      [always] defer+madvise madvise never
enabled     [always] madvise never
hpage_pmd_size  2097152
shmem_enabled  always within_size advise [never] deny force

```

```

-----
18. /sys/kernel/mm/transparent_hugepage/khugepaged
alloc_sleep_millisecs  60000
defrag                 1
max_ptes_none          511
max_ptes_shared        256
max_ptes_swap          64
pages_to_scan          4096
scan_sleep_millisecs  10000

```

```

-----
19. OS release
From /etc/*-release /etc/*-version
os-release      Red Hat Enterprise Linux 9.0 (Plow)
redhat-release  Red Hat Enterprise Linux release 9.0 (Plow)
system-release  Red Hat Enterprise Linux release 9.0 (Plow)

```

```

-----
20. Disk information
SPEC is set to: /home/cpu2017
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/mapper/rhel-home xfs   372G  8.3G  364G   3% /home

```

```

-----
21. /sys/devices/virtual/dmi/id
Vendor:      HPE
Product:     ProLiant DL365 Gen11
Product Family: ProLiant
Serial:      DL365G11-003

```

```

-----
22. dmidecode
Additional information from dmidecode 3.3 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

```

(Continued on next page)



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

ProLiant DL365 Gen11

(2.25 GHz, AMD EPYC 9754)

SPECspeed®2017\_int\_base = 11.3

SPECspeed®2017\_int\_peak = 11.5

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

**Test Date:** May-2023  
**Hardware Availability:** Jun-2023  
**Software Availability:** Nov-2022

## Platform Notes (Continued)

"DMTF SMBIOS" standard.

Memory:

18x Hynix HMG94AEBRA103N 64 GB 2 rank 4800  
5x Hynix HMG94MEBRA121N 64 GB 2 rank 4800  
1x Hynix HMG94MEBRA123N 64 GB 2 rank 4800

23. BIOS

(This section combines info from /sys/devices and dmidecode.)

BIOS Vendor: HPE  
BIOS Version: 1.30  
BIOS Date: 03/06/2023  
BIOS Revision: 1.30  
Firmware Revision: 1.10

## 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 14.0.6 (CLANG: AOCC\_4.0.0-Build#389 2022\_10\_07) (based on LLVM Mirror.Version.14.0.6)  
Target: x86\_64-unknown-linux-gnu  
Thread model: posix  
InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-4.0-3206-389/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 14.0.6 (CLANG: AOCC\_4.0.0-Build#389 2022\_10\_07) (based on LLVM Mirror.Version.14.0.6)  
Target: x86\_64-unknown-linux-gnu  
Thread model: posix  
InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-4.0-3206-389/bin

Fortran | 648.exchange2\_s(base, peak)

AMD clang version 14.0.6 (CLANG: AOCC\_4.0.0-Build#389 2022\_10\_07) (based on LLVM Mirror.Version.14.0.6)  
Target: x86\_64-unknown-linux-gnu  
Thread model: posix  
InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-4.0-3206-389/bin

## Base Compiler Invocation

C benchmarks:  
clang

C++ benchmarks:  
clang++

(Continued on next page)



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

ProLiant DL365 Gen11

(2.25 GHz, AMD EPYC 9754)

SPECspeed®2017\_int\_base = 11.3

SPECspeed®2017\_int\_peak = 11.5

**CPU2017 License:** 3

**Test Sponsor:** HPE

**Tested by:** HPE

**Test Date:** May-2023

**Hardware Availability:** Jun-2023

**Software Availability:** Nov-2022

## Base Compiler Invocation (Continued)

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,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-allow-multiple-definition -O3 -march=znver4 -fveclib=AMDLIBM
-ffast-math -fopenmp -flto -fstruct-layout=7
-mllvm -unroll-threshold=50 -mllvm -inline-threshold=1000
-fremap-arrays -fstrip-mining -mllvm -reduce-array-computations=3
-DSPEC_OPENMP -zopt -fopenmp=libomp -lomp -lamdlibm -lflang
-lamdalloc

```

C++ benchmarks:

```

-m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3 -O3 -march=znver4
-fveclib=AMDLIBM -ffast-math -fopenmp -flto
-mllvm -unroll-threshold=100 -finline-aggressive
-mllvm -loop-unswitch-threshold=200000
-mllvm -reduce-array-computations=3 -DSPEC_OPENMP -zopt
-fvirtual-function-elimination -fvisibility=hidden -fopenmp=libomp
-lomp -lamdlibm -lflang -lamdalloc-ext

```

Fortran benchmarks:

```

-m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-inline-recursion=4 -Wl,-mllvm -Wl,-lsr-in-nested-loop

```

(Continued on next page)



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

**ProLiant DL365 Gen11**

(2.25 GHz, AMD EPYC 9754)

SPECspeed®2017\_int\_base = 11.3

SPECspeed®2017\_int\_peak = 11.5

**CPU2017 License:** 3

**Test Sponsor:** HPE

**Tested by:** HPE

**Test Date:** May-2023

**Hardware Availability:** Jun-2023

**Software Availability:** Nov-2022

## Base Optimization Flags (Continued)

Fortran benchmarks (continued):

```
-Wl,-mllvm -Wl,-enable-iv-split -O3 -march=znver4 -fveclib=AMDLIBM
-ffast-math -fopenmp -flto -mllvm -optimize-strided-mem-cost
-mllvm -unroll-aggressive -mllvm -unroll-threshold=150 -fopenmp=libomp
-lomp -lamdlibm -lflang -lamdalloc
```

## Base Other Flags

C benchmarks:

```
-Wno-return-type -Wno-unused-command-line-argument
```

C++ benchmarks:

```
-Wno-unused-command-line-argument
```

Fortran benchmarks:

```
-Wno-unused-command-line-argument
```

## 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:

(Continued on next page)



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

ProLiant DL365 Gen11

(2.25 GHz, AMD EPYC 9754)

SPECspeed®2017\_int\_base = 11.3

SPECspeed®2017\_int\_peak = 11.5

**CPU2017 License:** 3

**Test Sponsor:** HPE

**Tested by:** HPE

**Test Date:** May-2023

**Hardware Availability:** Jun-2023

**Software Availability:** Nov-2022

## Peak Optimization Flags (Continued)

600.perlbench\_s: basepeak = yes

602.gcc\_s: basepeak = yes

605.mcf\_s: -m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6  
-Wl,-mllvm -Wl,-reduce-array-computations=3  
-Wl,-allow-multiple-definition -Ofast -march=znver4  
-fveclib=AMDLIBM -ffast-math -fopenmp -flto  
-fstruct-layout=9 -mllvm -unroll-threshold=50  
-fremap-arrays -fstrip-mining  
-mllvm -inline-threshold=1000  
-mllvm -reduce-array-computations=3 -DSPEC\_OPENMP -zopt  
-fopenmp=libomp -lomp -lamdlibm -lamdalloc -lflang

625.x264\_s: basepeak = yes

657.xz\_s: basepeak = yes

C++ benchmarks:

620.omnetpp\_s: basepeak = yes

623.xalancbmk\_s: -m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6  
-Wl,-mllvm -Wl,-reduce-array-computations=3  
-Wl,-mllvm -Wl,-do-block-reorder=aggressive -Ofast  
-march=znver4 -fveclib=AMDLIBM -ffast-math -fopenmp  
-flto -finline-aggressive -mllvm -unroll-threshold=100  
-mllvm -reduce-array-computations=3 -DSPEC\_OPENMP -zopt  
-mllvm -do-block-reorder=aggressive  
-fvirtual-function-elimination -fvisibility=hidden  
-fopenmp=libomp -lomp -lamdlibm -lamdalloc-ext -lflang

631.deepsjeng\_s: basepeak = yes

641.leela\_s: basepeak = yes

Fortran benchmarks:

648.exchange2\_s: basepeak = yes

## Peak Other Flags

C benchmarks:

-Wno-return-type -Wno-unused-command-line-argument

(Continued on next page)



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

ProLiant DL365 Gen11

(2.25 GHz, AMD EPYC 9754)

SPECspeed®2017\_int\_base = 11.3

SPECspeed®2017\_int\_peak = 11.5

**CPU2017 License:** 3

**Test Sponsor:** HPE

**Tested by:** HPE

**Test Date:** May-2023

**Hardware Availability:** Jun-2023

**Software Availability:** Nov-2022

## Peak Other Flags (Continued)

C++ benchmarks:

-Wno-unused-command-line-argument

Fortran benchmarks:

-Wno-unused-command-line-argument

The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2017/flags/aocc400-flags.html>

<http://www.spec.org/cpu2017/flags/HPE-Platform-Flags-AMD-Bergamo-rev1.0.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2017/flags/aocc400-flags.xml>

<http://www.spec.org/cpu2017/flags/HPE-Platform-Flags-AMD-Bergamo-rev1.0.xml>

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®2017 v1.1.9 on 2022-04-06 20:52:06-0400.

Report generated on 2023-06-13 15:16:27 by CPU2017 PDF formatter v6716.

Originally published on 2023-06-13.