



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

## Hewlett Packard Enterprise

(Test Sponsor: HPE)

### ProLiant DL385 Gen11

(3.00 GHz, AMD EPYC 9124)

SPECspeed®2017\_int\_base = 13.1

SPECspeed®2017\_int\_peak = 13.2

CPU2017 License: 3

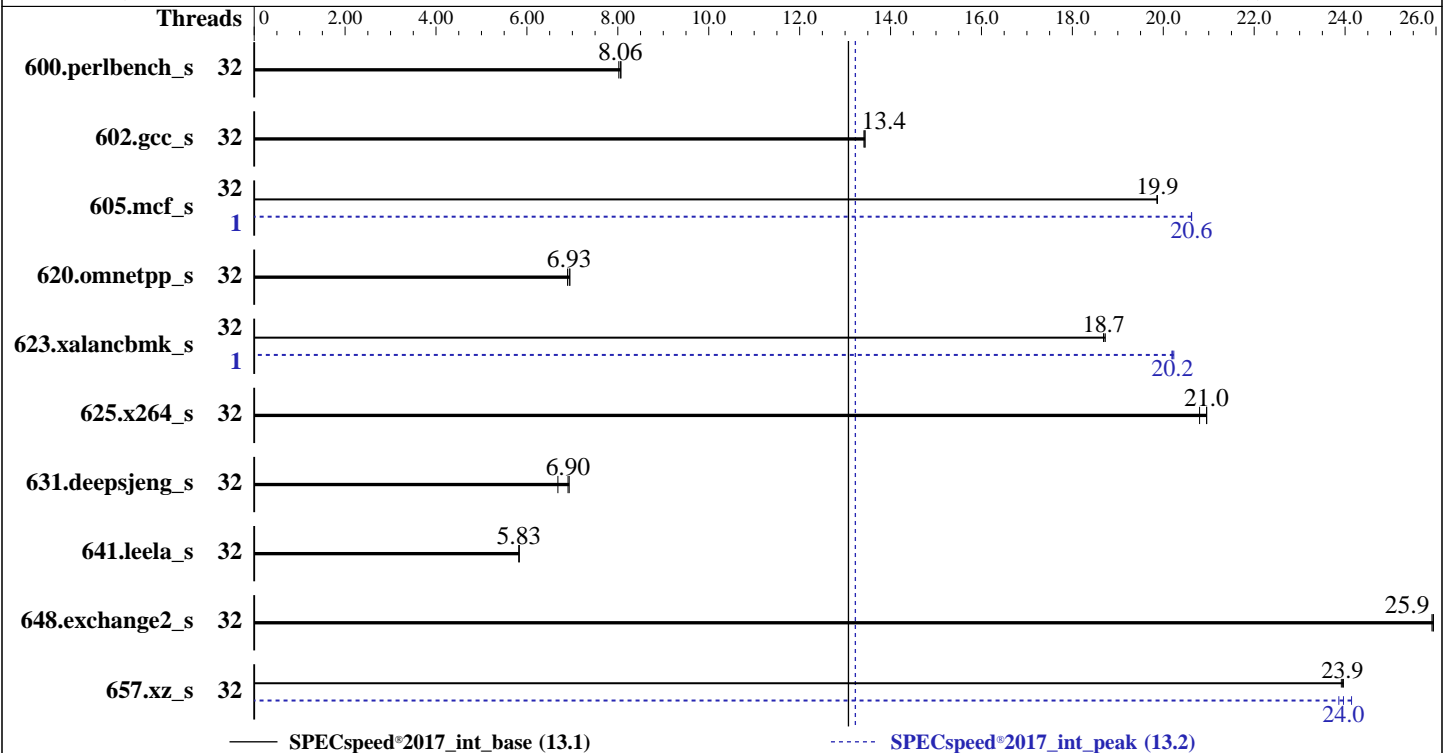
Test Sponsor: HPE

Tested by: HPE

Test Date: Nov-2022

Hardware Availability: Dec-2022

Software Availability: Nov-2022



### Hardware

CPU Name: AMD EPYC 9124  
 Max MHz: 3700  
 Nominal: 3000  
 Enabled: 32 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: 64 MB I+D on chip per chip,  
 16 MB shared / 4 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 v1.10 10/18/2022 released Oct-2022  
 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 2017-2022 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

ProLiant DL385 Gen11

(3.00 GHz, AMD EPYC 9124)

SPECspeed®2017\_int\_base = 13.1

SPECspeed®2017\_int\_peak = 13.2

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

Test Date: Nov-2022  
Hardware Availability: Dec-2022  
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	32	<b>220</b>	<b>8.06</b>	221	8.02	220	8.07	32	<b>220</b>	<b>8.06</b>	221	8.02	220	8.07
602.gcc_s	32	296	13.4	<b>296</b>	<b>13.4</b>	297	13.4	32	296	13.4	<b>296</b>	<b>13.4</b>	297	13.4
605.mcf_s	32	238	19.9	<b>238</b>	<b>19.9</b>	238	19.9	1	<b>229</b>	<b>20.6</b>	229	20.6	229	20.6
620.omnetpp_s	32	<b>235</b>	<b>6.93</b>	235	6.95	237	6.89	32	<b>235</b>	<b>6.93</b>	235	6.95	237	6.89
623.xalancbmk_s	32	75.8	18.7	75.7	18.7	<b>75.8</b>	<b>18.7</b>	1	<b>70.1</b>	<b>20.2</b>	70.0	20.2	70.2	20.2
625.x264_s	32	84.8	20.8	84.2	21.0	<b>84.2</b>	<b>21.0</b>	32	84.8	20.8	84.2	21.0	<b>84.2</b>	<b>21.0</b>
631.deepsjeng_s	32	207	6.93	<b>208</b>	<b>6.90</b>	214	6.68	32	207	6.93	<b>208</b>	<b>6.90</b>	214	6.68
641.leela_s	32	293	5.83	<b>293</b>	<b>5.83</b>	293	5.82	32	293	5.83	<b>293</b>	<b>5.83</b>	293	5.82
648.exchange2_s	32	113	25.9	<b>113</b>	<b>25.9</b>	113	25.9	32	113	25.9	<b>113</b>	<b>25.9</b>	113	25.9
657.xz_s	32	<b>258</b>	<b>23.9</b>	258	23.9	258	24.0	32	256	24.1	<b>258</b>	<b>24.0</b>	259	23.9

SPECspeed®2017\_int\_base = **13.1**

SPECspeed®2017\_int\_peak = **13.2**

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.

(Continued on next page)



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

ProLiant DL385 Gen11

(3.00 GHz, AMD EPYC 9124)

SPECspeed®2017\_int\_base = 13.1

SPECspeed®2017\_int\_peak = 13.2

**CPU2017 License:** 3

**Test Sponsor:** HPE

**Tested by:** HPE

**Test Date:** Nov-2022

**Hardware Availability:** Dec-2022

**Software Availability:** Nov-2022

## 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.

## Environment Variables Notes

Environment variables set by runcpu before the start of the run:  
GOMP\_CPU\_AFFINITY = "0-31"  
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 = "32"

Environment variables set by runcpu during the 605.mcf\_s peak run:  
GOMP\_CPU\_AFFINITY = "15"

Environment variables set by runcpu during the 623.xalanbmk\_s peak run:  
GOMP\_CPU\_AFFINITY = "15"

Environment variables set by runcpu during the 657.xz\_s peak run:  
GOMP\_CPU\_AFFINITY = "0-31"  
LIBOMP\_NUM\_HIDDEN\_HELPER\_THREADS = "8"

## 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

(Continued on next page)



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

ProLiant DL385 Gen11

(3.00 GHz, AMD EPYC 9124)

SPECspeed®2017\_int\_base = 13.1

SPECspeed®2017\_int\_peak = 13.2

CPU2017 License: 3

Test Sponsor: HPE

Tested by: HPE

Test Date: Nov-2022

Hardware Availability: Dec-2022

Software Availability: Nov-2022

## Platform Notes (Continued)

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  
Memory PStates set to Disabled  
Thermal Configuration set to Maximum Cooling

The system ROM used for this result contains microcode version 0x0A10110e for the AMD EPYC 9nn4X family of processors. The reference code/AGESA version used in this ROM is version GenoaPI 1.0.0.1-L3

Sysinfo program /home/CPU2017/bin/sysinfo  
Rev: r6622 of 2021-04-07 982a61ec0915b55891ef0e16acafc64d  
running on localhost.localdomain Wed Apr 6 19:10:44 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 9124 16-Core Processor  
2 "physical id"s (chips)  
32 "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  
physical 1: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

From lscpu from util-linux 2.37.4:  
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): 32  
On-line CPU(s) list: 0-31  
Vendor ID: AuthenticAMD  
BIOS Vendor ID: Advanced Micro Devices, Inc.  
Model name: AMD EPYC 9124 16-Core Processor  
BIOS Model name: AMD EPYC 9124 16-Core Processor  
CPU family: 25  
Model: 17  
Thread(s) per core: 1  
Core(s) per socket: 16  
Socket(s): 2  
Stepping: 1

(Continued on next page)



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

ProLiant DL385 Gen11

(3.00 GHz, AMD EPYC 9124)

SPECspeed®2017\_int\_base = 13.1

SPECspeed®2017\_int\_peak = 13.2

**CPU2017 License:** 3

**Test Sponsor:** HPE

**Tested by:** HPE

**Test Date:** Nov-2022

**Hardware Availability:** Dec-2022

**Software Availability:** Nov-2022

## Platform Notes (Continued)

```

Frequency boost:          enabled
CPU max MHz:             3711.9141
CPU min MHz:             1500.0000
BogoMIPS:                5990.86
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
aperfmpperf 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_omsave_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:               1 MiB (32 instances)
L1i cache:               1 MiB (32 instances)
L2 cache:                32 MiB (32 instances)
L3 cache:                128 MiB (8 instances)
NUMA node(s):           8
NUMA node0 CPU(s):      0-3
NUMA node1 CPU(s):      8-11
NUMA node2 CPU(s):      12-15
NUMA node3 CPU(s):      4-7
NUMA node4 CPU(s):      16-19
NUMA node5 CPU(s):      24-27
NUMA node6 CPU(s):      28-31
NUMA node7 CPU(s):      20-23
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
Vulnerability Spectre v1: Mitigation; usercopy/swapgs 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:`

(Continued on next page)



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

ProLiant DL385 Gen11

(3.00 GHz, AMD EPYC 9124)

SPECspeed®2017\_int\_base = 13.1

SPECspeed®2017\_int\_peak = 13.2

**CPU2017 License:** 3

**Test Sponsor:** HPE

**Tested by:** HPE

**Test Date:** Nov-2022

**Hardware Availability:** Dec-2022

**Software Availability:** Nov-2022

## Platform Notes (Continued)

NAME	ONE-SIZE	ALL-SIZE	WAYS	TYPE	LEVEL	SETS	PHY-LINE	COHERENCY-SIZE
Lld	32K	1M	8	Data	1	64	1	64
Lli	32K	1M	8	Instruction	1	64	1	64
L2	1M	32M	8	Unified	2	2048	1	64
L3	16M	128M	16	Unified	3	16384	1	64

```
/proc/cpuinfo cache data
cache size : 1024 KB
```

```
From numactl --hardware
```

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

```
available: 8 nodes (0-7)
```

```
node 0 cpus: 0 1 2 3
```

```
node 0 size: 192776 MB
```

```
node 0 free: 192453 MB
```

```
node 1 cpus: 8 9 10 11
```

```
node 1 size: 193534 MB
```

```
node 1 free: 193393 MB
```

```
node 2 cpus: 12 13 14 15
```

```
node 2 size: 193534 MB
```

```
node 2 free: 193343 MB
```

```
node 3 cpus: 4 5 6 7
```

```
node 3 size: 193498 MB
```

```
node 3 free: 193354 MB
```

```
node 4 cpus: 16 17 18 19
```

```
node 4 size: 193534 MB
```

```
node 4 free: 193374 MB
```

```
node 5 cpus: 24 25 26 27
```

```
node 5 size: 193534 MB
```

```
node 5 free: 192994 MB
```

```
node 6 cpus: 28 29 30 31
```

```
node 6 size: 193534 MB
```

```
node 6 free: 193320 MB
```

```
node 7 cpus: 20 21 22 23
```

```
node 7 size: 193485 MB
```

```
node 7 free: 193334 MB
```

```
node distances:
```

```
node 0 1 2 3 4 5 6 7
```

```
0: 10 12 12 12 32 32 32 32
```

```
1: 12 10 12 12 32 32 32 32
```

```
2: 12 12 10 12 32 32 32 32
```

```
3: 12 12 12 10 32 32 32 32
```

```
4: 32 32 32 32 10 12 12 12
```

```
5: 32 32 32 32 12 10 12 12
```

```
6: 32 32 32 32 12 12 10 12
```

```
7: 32 32 32 32 12 12 12 10
```

(Continued on next page)



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

ProLiant DL385 Gen11

(3.00 GHz, AMD EPYC 9124)

SPECspeed®2017\_int\_base = 13.1

SPECspeed®2017\_int\_peak = 13.2

**CPU2017 License:** 3

**Test Sponsor:** HPE

**Tested by:** HPE

**Test Date:** Nov-2022

**Hardware Availability:** Dec-2022

**Software Availability:** Nov-2022

## Platform Notes (Continued)

From /proc/meminfo

MemTotal: 1584573504 kB

HugePages\_Total: 0

Hugepagesize: 2048 kB

/sbin/tuned-adm active

Current active profile: throughput-performance

/sys/devices/system/cpu/cpu\*/cpufreq/scaling\_governor has performance

From /etc/\*release\* /etc/\*version\*

os-release:

NAME="Red Hat Enterprise Linux"

VERSION="9.0 (Plow)"

ID="rhel"

ID\_LIKE="fedora"

VERSION\_ID="9.0"

PLATFORM\_ID="platform:el9"

PRETTY\_NAME="Red Hat Enterprise Linux 9.0 (Plow)"

ANSI\_COLOR="0;31"

redhat-release: Red Hat Enterprise Linux release 9.0 (Plow)

system-release: Red Hat Enterprise Linux release 9.0 (Plow)

system-release-cpe: cpe:/o:redhat:enterprise\_linux:9::baseos

uname -a:

Linux localhost.localdomain 5.14.0-70.13.1.el9\_0.x86\_64 #1 SMP PREEMPT Thu Apr 14 12:42:38 EDT 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

CVE-2017-5753 (Spectre variant 1):

Mitigation: usercopy/swapgs barriers and \_\_user pointer sanitization

CVE-2017-5715 (Spectre variant 2):

Mitigation: Retpolines, IBPB: conditional, IBRS\_FW, STIBP: disabled, RSB filling

CVE-2020-0543 (Special Register Buffer Data Sampling): Not affected

CVE-2019-11135 (TSX Asynchronous Abort): Not affected

run-level 3 Apr 6 19:00

(Continued on next page)



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

**ProLiant DL385 Gen11**

(3.00 GHz, AMD EPYC 9124)

SPECspeed®2017\_int\_base = 13.1

SPECspeed®2017\_int\_peak = 13.2

**CPU2017 License:** 3

**Test Sponsor:** HPE

**Tested by:** HPE

**Test Date:** Nov-2022

**Hardware Availability:** Dec-2022

**Software Availability:** Nov-2022

## Platform Notes (Continued)

SPEC is set to: /home/CPU2017

Filesystem	Type	Size	Used	Avail	Use%	Mounted on
/dev/mapper/rhel-home	xfs	372G	149G	223G	40%	/home

From /sys/devices/virtual/dmi/id

```
Vendor:          HPE
Product:        ProLiant DL385 Gen11
Product Family: ProLiant
Serial:         DL385GEN11-003
```

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 "DMTF SMBIOS" standard.

Memory:

```
13x Hynix HMC94MEBRA121N 64 GB 2 rank 4800
11x Hynix HMC94MEBRA123N 64 GB 2 rank 4800
```

BIOS:

```
BIOS Vendor:      HPE
BIOS Version:     1.10
BIOS Date:        10/18/2022
BIOS Revision:    1.10
Firmware Revision: 1.10
```

(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 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

(Continued on next page)





# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

ProLiant DL385 Gen11

(3.00 GHz, AMD EPYC 9124)

SPECspeed®2017\_int\_base = 13.1

SPECspeed®2017\_int\_peak = 13.2

**CPU2017 License:** 3

**Test Sponsor:** HPE

**Tested by:** HPE

**Test Date:** Nov-2022

**Hardware Availability:** Dec-2022

**Software Availability:** Nov-2022

## Compiler Version Notes (Continued)

```

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++

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

```



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

ProLiant DL385 Gen11

(3.00 GHz, AMD EPYC 9124)

SPECspeed®2017\_int\_base = 13.1

SPECspeed®2017\_int\_peak = 13.2

**CPU2017 License:** 3

**Test Sponsor:** HPE

**Tested by:** HPE

**Test Date:** Nov-2022

**Hardware Availability:** Dec-2022

**Software Availability:** Nov-2022

## 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 -fltto -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 -fltto
-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
-Wl,-mllvm -Wl,-enable-iv-split -O3 -march=znver4 -fveclib=AMDLIBM
-ffast-math -fopenmp -fltto -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
```



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

ProLiant DL385 Gen11

(3.00 GHz, AMD EPYC 9124)

SPECspeed®2017\_int\_base = 13.1

SPECspeed®2017\_int\_peak = 13.2

**CPU2017 License:** 3

**Test Sponsor:** HPE

**Tested by:** HPE

**Test Date:** Nov-2022

**Hardware Availability:** Dec-2022

**Software Availability:** Nov-2022

## 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:

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: Same as 605.mcf\_s

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

(Continued on next page)



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

ProLiant DL385 Gen11

(3.00 GHz, AMD EPYC 9124)

SPECspeed®2017\_int\_base = 13.1

SPECspeed®2017\_int\_peak = 13.2

CPU2017 License: 3

Test Sponsor: HPE

Tested by: HPE

Test Date: Nov-2022

Hardware Availability: Dec-2022

Software Availability: Nov-2022

## Peak Optimization Flags (Continued)

623.xalancbmk\_s (continued):

```
-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
```

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/HPE-Platform-Flags-AMD-Genoa-rev2.0.html>

<http://www.spec.org/cpu2017/flags/aocc400-flags.2022-12-08.html>

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

<http://www.spec.org/cpu2017/flags/HPE-Platform-Flags-AMD-Genoa-rev2.0.xml>

<http://www.spec.org/cpu2017/flags/aocc400-flags.2022-12-08.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 v1.1.8 on 2022-04-06 20:10:44-0400.

Report generated on 2022-12-08 15:32:36 by CPU2017 PDF formatter v6442.

Originally published on 2022-12-08.