



# SPEC CPU®2017 Integer Speed Result

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## Hewlett Packard Enterprise

(Test Sponsor: HPE)

### ProLiant DL325 Gen11

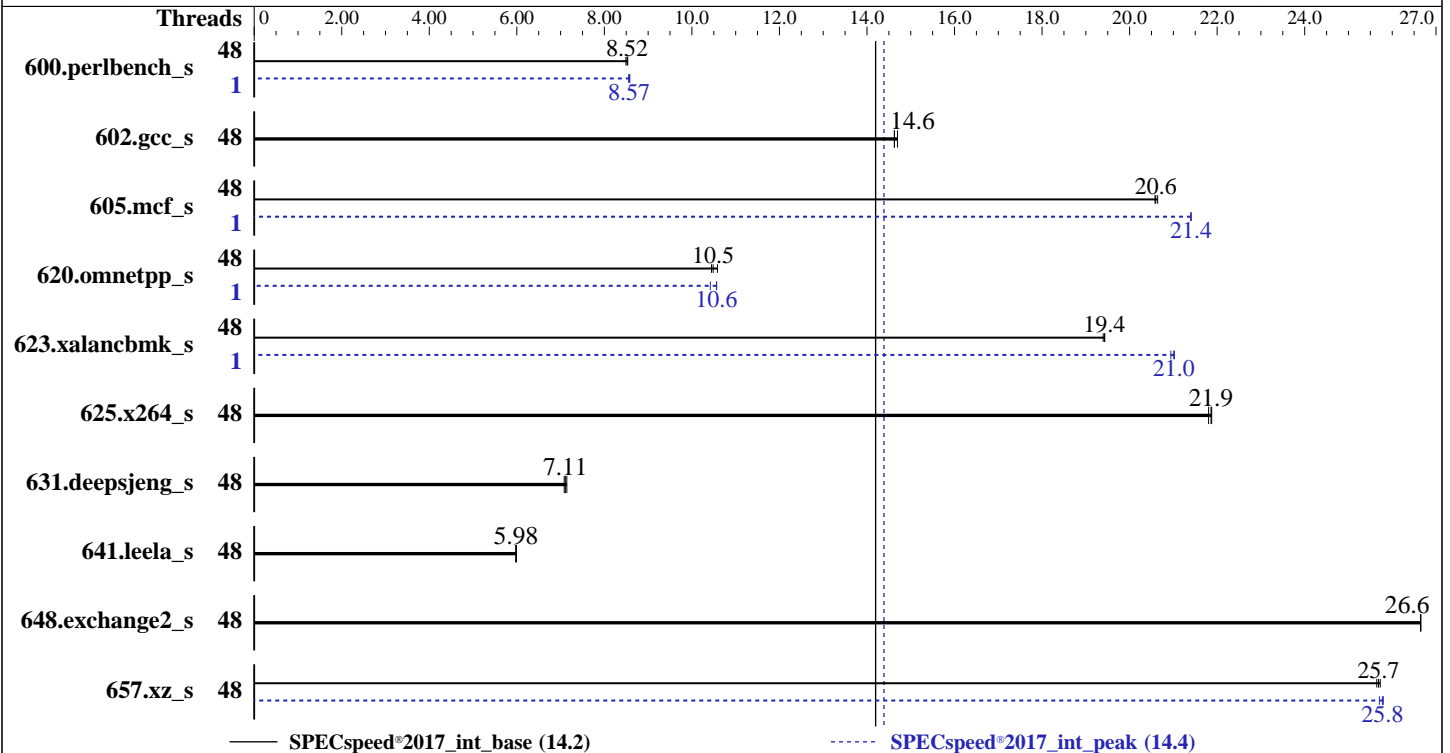
(2.75 GHz, AMD EPYC 9454P)

SPECspeed®2017\_int\_base = 14.2

SPECspeed®2017\_int\_peak = 14.4

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

Test Date: Jan-2023  
Hardware Availability: Dec-2022  
Software Availability: Nov-2022



### Hardware

CPU Name: AMD EPYC 9454P  
Max MHz: 3800  
Nominal: 2750  
Enabled: 48 cores, 1 chip  
Orderable: 1 chip  
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,  
32 MB shared / 6 cores  
Other: None  
Memory: 768 GB (12 x 64 GB 2Rx4 PC5-4800B-R)  
Storage: 1 x 960 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 v1.12 11/24/2022 released  
Nov-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



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## Results Table

Benchmark	Base							Peak						
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
600.perlbench_s	48	209	8.49	208	8.53	<b>208</b>	<b>8.52</b>	1	207	8.58	<b>207</b>	<b>8.57</b>	207	8.56
602.gcc_s	48	<b>272</b>	<b>14.6</b>	271	14.7	272	14.6	48	<b>272</b>	<b>14.6</b>	271	14.7	272	14.6
605.mcf_s	48	<b>229</b>	<b>20.6</b>	229	20.6	229	20.6	1	<b>221</b>	<b>21.4</b>	221	21.4	221	21.4
620.omnetpp_s	48	156	10.4	<b>156</b>	<b>10.5</b>	154	10.6	1	<b>154</b>	<b>10.6</b>	156	10.4	154	10.6
623.xalancbmk_s	48	<b>72.9</b>	<b>19.4</b>	73.1	19.4	72.9	19.4	1	67.7	20.9	<b>67.4</b>	<b>21.0</b>	67.4	21.0
625.x264_s	48	80.9	21.8	80.6	21.9	<b>80.7</b>	<b>21.9</b>	48	80.9	21.8	80.6	21.9	<b>80.7</b>	<b>21.9</b>
631.deepsjeng_s	48	202	7.08	201	7.14	<b>202</b>	<b>7.11</b>	48	202	7.08	201	7.14	<b>202</b>	<b>7.11</b>
641.leela_s	48	285	5.98	285	5.99	<b>285</b>	<b>5.98</b>	48	285	5.98	285	5.99	<b>285</b>	<b>5.98</b>
648.exchange2_s	48	110	26.6	<b>110</b>	<b>26.6</b>	110	26.7	48	110	26.6	<b>110</b>	<b>26.6</b>	110	26.7
657.xz_s	48	240	25.7	241	25.6	<b>241</b>	<b>25.7</b>	48	<b>240</b>	<b>25.8</b>	240	25.8	240	25.7

SPECspeed®2017\_int\_base = **14.2**

SPECspeed®2017\_int\_peak = **14.4**

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.

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## 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 = "0-47"

LD\_LIBRARY\_PATH = "/home/cpu2017\_speed/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 = "48"

Environment variables set by runcpu during the 600.perlbench\_s peak run:

GOMP\_CPU\_AFFINITY = "15"

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

GOMP\_CPU\_AFFINITY = "15"

Environment variables set by runcpu during the 620.omnetpp\_s peak run:

GOMP\_CPU\_AFFINITY = "15"

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

GOMP\_CPU\_AFFINITY = "15"

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

GOMP\_CPU\_AFFINITY = "0-47"

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.



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## 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

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-L6

Sysinfo program /home/cpu2017\_speed/bin/sysinfo

Rev: r6622 of 2021-04-07 982a61ec0915b55891ef0e16acafc64d

running on localhost.localdomain Thu Apr 7 05:35:05 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 9454P 48-Core Processor

1 "physical id"s (chips)

48 "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 : 48

siblings : 48

physical 0: cores 0 1 2 3 4 5 8 9 10 11 12 13 16 17 18 19 20 21 24 25 26 27 28 29

32 33 34 35 36 37 40 41 42 43 44 45 48 49 50 51 52 53 56 57 58 59 60 61

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): 48

On-line CPU(s) list: 0-47

Vendor ID: AuthenticAMD

BIOS Vendor ID: Advanced Micro Devices, Inc.

Model name: AMD EPYC 9454P 48-Core Processor

BIOS Model name: AMD EPYC 9454P 48-Core Processor

CPU family: 25

Model: 17

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## Platform Notes (Continued)

```

Thread(s) per core:          1
Core(s) per socket:         48
Socket(s):                   1
Stepping:                    1
BogoMIPS:                    5491.75
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_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_1ld
Virtualization:              AMD-V
L1d cache:                   1.5 MiB (48 instances)
L1i cache:                   1.5 MiB (48 instances)
L2 cache:                    48 MiB (48 instances)
L3 cache:                    256 MiB (8 instances)
NUMA node(s):                8
NUMA node0 CPU(s):           0-5
NUMA node1 CPU(s):           24-29
NUMA node2 CPU(s):           12-17
NUMA node3 CPU(s):           36-41
NUMA node4 CPU(s):           18-23
NUMA node5 CPU(s):           42-47
NUMA node6 CPU(s):           6-11
NUMA node7 CPU(s):           30-35
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

```

(Continued on next page)



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## Platform Notes (Continued)

From `lscpu --cache:`

NAME	ONE-SIZE	ALL-SIZE	WAYS	TYPE	LEVEL	SETS	PHY-LINE	COHERENCY-SIZE
L1d	32K	1.5M	8	Data	1	64	1	64
L1i	32K	1.5M	8	Instruction	1	64	1	64
L2	1M	48M	8	Unified	2	2048	1	64
L3	32M	256M	16	Unified	3	32768	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 4 5
node 0 size: 96520 MB
node 0 free: 96181 MB
node 1 cpus: 24 25 26 27 28 29
node 1 size: 96766 MB
node 1 free: 96420 MB
node 2 cpus: 12 13 14 15 16 17
node 2 size: 96730 MB
node 2 free: 96539 MB
node 3 cpus: 36 37 38 39 40 41
node 3 size: 96766 MB
node 3 free: 96601 MB
node 4 cpus: 18 19 20 21 22 23
node 4 size: 96766 MB
node 4 free: 96410 MB
node 5 cpus: 42 43 44 45 46 47
node 5 size: 96766 MB
node 5 free: 96529 MB
node 6 cpus: 6 7 8 9 10 11
node 6 size: 96766 MB
node 6 free: 96613 MB
node 7 cpus: 30 31 32 33 34 35
node 7 size: 96718 MB
node 7 free: 96568 MB
node distances:
node  0  1  2  3  4  5  6  7
 0:  10 11 12 12 12 12 12 12
 1:  11 10 12 12 12 12 12 12
 2:  12 12 10 11 12 12 12 12
 3:  12 12 11 10 12 12 12 12
 4:  12 12 12 12 10 11 12 12
 5:  12 12 12 12 12 11 10 12
 6:  12 12 12 12 12 12 10 11
 7:  12 12 12 12 12 12 11 10

```

(Continued on next page)



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## Platform Notes (Continued)

From /proc/meminfo

MemTotal: 792372444 kB

HugePages\_Total: 0

Hugepagesize: 2048 kB

/sbin/tuned-adm active

Current active profile: throughput-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 7 05:30

SPEC is set to: /home/cpu2017\_speed

(Continued on next page)



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## Platform Notes (Continued)

Filesystem	Type	Size	Used	Avail	Use%	Mounted on
/dev/mapper/rhel-home	xfs	819G	61G	758G	8%	/home

```

From /sys/devices/virtual/dmi/id
Vendor:          HPE
Product:         ProLiant DL325 Gen11
Product Family: ProLiant
Serial:          DL325G11-010

```

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:
  10x Hynix HMCG94AEBRA103N 64 GB 2 rank 4800
  2x Hynix HMCG94MEBRA121N 64 GB 2 rank 4800

```

```

BIOS:
  BIOS Vendor:      HPE
  BIOS Version:     1.12
  BIOS Date:        11/24/2022
  BIOS Revision:    1.12
  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
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Target: x86_64-unknown-linux-gnu

```

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## Compiler Version Notes (Continued)

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



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## 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
-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
```



# SPEC CPU®2017 Integer Speed Result

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**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

ProLiant DL325 Gen11

(2.75 GHz, AMD EPYC 9454P)

SPECspeed®2017\_int\_base = 14.2

SPECspeed®2017\_int\_peak = 14.4

**CPU2017 License:** 3

**Test Sponsor:** HPE

**Tested by:** HPE

**Test Date:** Jan-2023

**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: -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
```

602.gcc\_s: basepeak = yes

605.mcf\_s: Same as 600.perlbench\_s

625.x264\_s: basepeak = yes

657.xz\_s: Same as 600.perlbench\_s

C++ benchmarks:

```
620.omnetpp_s: -m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3 -Ofast
-march=znver4 -fveclib=AMDLIBM -ffast-math -fopenmp
-flto -finline-aggressive -mllvm -unroll-threshold=100
-mllvm -reduce-array-computations=3 -DSPEC_OPENMP -zopt
```

(Continued on next page)



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## Peak Optimization Flags (Continued)

620.omnetpp\_s (continued):

```
-fvirtual-function-elimination -fvisibility=hidden
-fopenmp=libomp -lomp -lamdlibm -lamdalloc-ext -lflang
```

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
```

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-rev2.1.html>

<http://www.spec.org/cpu2017/flags/aocc400-flags.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-rev2.1.xml>

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



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