



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

## Lenovo Global Technology

ThinkSystem SR665 V3  
(2.90 GHz,AMD EPYC 9254)

SPECspeed®2017\_int\_base = 15.4

SPECspeed®2017\_int\_peak = 15.6

CPU2017 License: 9017

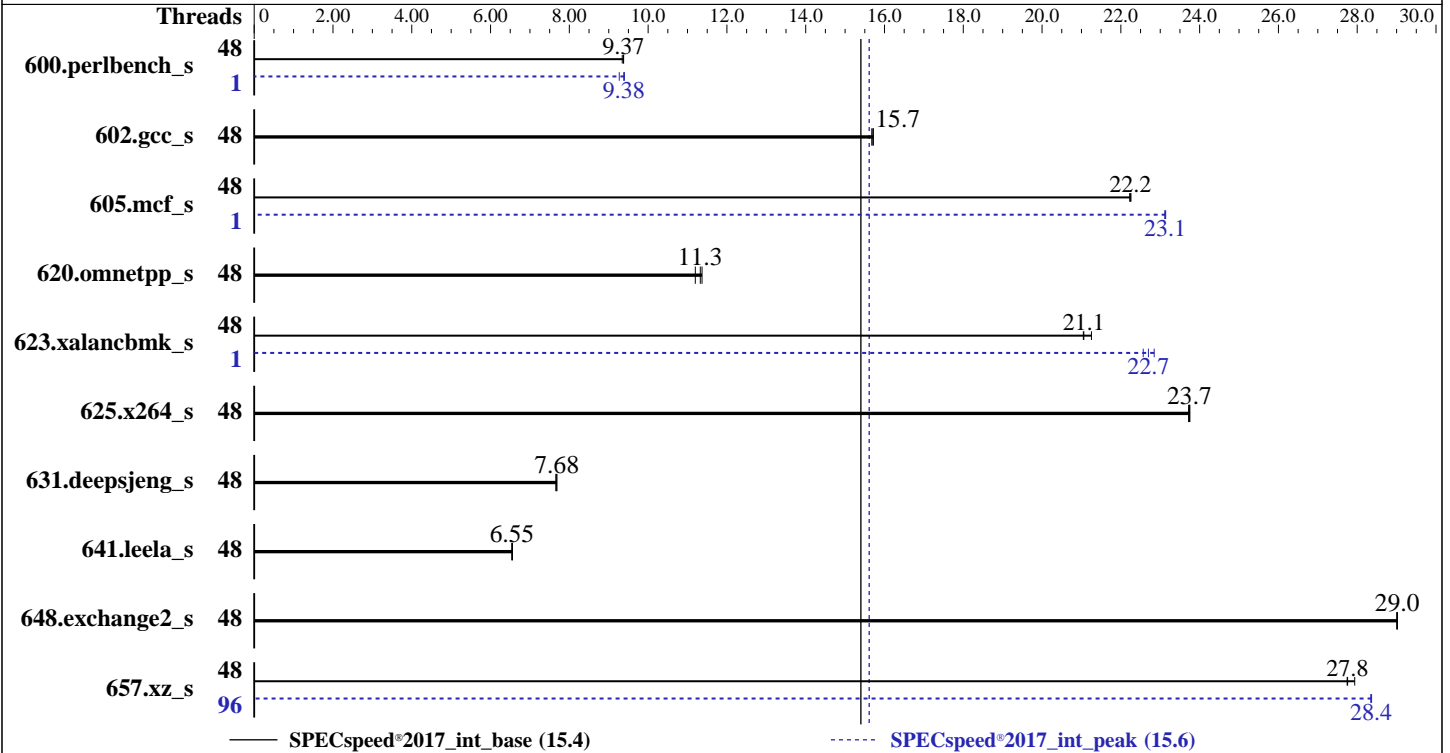
Test Sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test Date: Jan-2023

Hardware Availability: Feb-2023

Software Availability: Nov-2022



### Hardware

CPU Name: AMD EPYC 9254  
 Max MHz: 4150  
 Nominal: 2900  
 Enabled: 48 cores, 2 chips, 2 threads/core  
 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: 128 MB I+D on chip per chip,  
 32 MB shared / 6 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: SUSE Linux Enterprise Server 15 SP4 (x86\_64)  
 Kernel 5.14.21-150400.22-default  
 Compiler: C/C++/Fortran: Version 4.0.0 of AOCC  
 Parallel: Yes  
 Firmware: Lenovo BIOS Version KAE105L 1.20 released Dec-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	190	9.34	<b><u>189</u></b>	<b><u>9.37</u></b>	189	9.38	1	189	9.40	<b><u>189</u></b>	<b><u>9.38</u></b>	192	9.27
602.gcc_s	48	253	15.7	254	15.7	<b><u>254</u></b>	<b><u>15.7</u></b>	48	253	15.7	254	15.7	<b><u>254</u></b>	<b><u>15.7</u></b>
605.mcf_s	48	212	22.3	212	22.2	<b><u>212</u></b>	<b><u>22.2</u></b>	1	<b><u>204</u></b>	<b><u>23.1</u></b>	204	23.1	204	23.1
620.omnetpp_s	48	<b><u>144</u></b>	<b><u>11.3</u></b>	143	11.4	146	11.2	48	<b><u>144</u></b>	<b><u>11.3</u></b>	143	11.4	146	11.2
623.xalancbmk_s	48	66.7	21.3	<b><u>67.3</u></b>	<b><u>21.1</u></b>	67.3	21.0	1	62.8	22.6	62.0	22.8	<b><u>62.4</u></b>	<b><u>22.7</u></b>
625.x264_s	48	74.4	23.7	<b><u>74.3</u></b>	<b><u>23.7</u></b>	74.3	23.8	48	74.4	23.7	<b><u>74.3</u></b>	<b><u>23.7</u></b>	74.3	23.8
631.deepsjeng_s	48	187	7.66	187	7.68	<b><u>187</u></b>	<b><u>7.68</u></b>	48	187	7.66	187	7.68	<b><u>187</u></b>	<b><u>7.68</u></b>
641.leela_s	48	<b><u>261</u></b>	<b><u>6.55</u></b>	261	6.54	260	6.56	48	<b><u>261</u></b>	<b><u>6.55</u></b>	261	6.54	260	6.56
648.exchange2_s	48	101	29.0	101	29.0	<b><u>101</u></b>	<b><u>29.0</u></b>	48	101	29.0	101	29.0	<b><u>101</u></b>	<b><u>29.0</u></b>
657.xz_s	48	223	27.7	<b><u>223</u></b>	<b><u>27.8</u></b>	221	27.9	96	218	28.4	218	28.3	<b><u>218</u></b>	<b><u>28.4</u></b>

SPECspeed®2017\_int\_base = **15.4**

SPECspeed®2017\_int\_peak = **15.6**

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 = "0-95"  
LD\_LIBRARY\_PATH =  
"/home/cpu2017-1.1.8-amd-aocc400-genoa-B1b/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 = "96"

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 623.xalancbmk\_s peak run:  
GOMP\_CPU\_AFFINITY = "15"

Environment variables set by runcpu during the 657.xz\_s peak run:  
GOMP\_CPU\_AFFINITY = "0-95"  
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:

Operating Mode set to Maximum Performance and then set it to Custom Mode

NUMA Nodes per Socket set to NPS4

Sysinfo program /home/cpu2017-1.1.8-amd-aocc400-genoa-Blb/bin/sysinfo

Rev: r6622 of 2021-04-07 982a61ec0915b55891ef0e16acafc64d

running on localhost Sun Jan 8 01:31:00 2023

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 9254 24-Core Processor

2 "physical id"s (chips)

96 "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 : 24

siblings : 48

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

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

From lscpu from util-linux 2.37.2:

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): 96

On-line CPU(s) list: 0-95

Vendor ID: AuthenticAMD

Model name: AMD EPYC 9254 24-Core Processor

CPU family: 25

Model: 17

Thread(s) per core: 2

Core(s) per socket: 24

Socket(s): 2

Stepping: 1

Frequency boost: enabled

CPU max MHz: 4151.7568

CPU min MHz: 1500.0000

BogoMIPS: 5791.03

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

aperfperf 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

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### Platform Notes (Continued)

```

misalignsse 3dnowprefetch osvw ibs skinit wdt tce topoext perfctr_core perfctr_nb
bpxext 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: 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): 0-5,48-53
NUMA node1 CPU(s): 6-11,54-59
NUMA node2 CPU(s): 12-17,60-65
NUMA node3 CPU(s): 18-23,66-71
NUMA node4 CPU(s): 24-29,72-77
NUMA node5 CPU(s): 30-35,78-83
NUMA node6 CPU(s): 36-41,84-89
NUMA node7 CPU(s): 42-47,90-95
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; Retpolines, IBPB conditional, IBRS_FW,
STIBP always-on, 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	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

```

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### Platform Notes (Continued)

From numactl --hardware

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

```

available: 8 nodes (0-7)
node 0 cpus: 0 1 2 3 4 5 48 49 50 51 52 53
node 0 size: 193273 MB
node 0 free: 192578 MB
node 1 cpus: 6 7 8 9 10 11 54 55 56 57 58 59
node 1 size: 193519 MB
node 1 free: 193257 MB
node 2 cpus: 12 13 14 15 16 17 60 61 62 63 64 65
node 2 size: 193519 MB
node 2 free: 193231 MB
node 3 cpus: 18 19 20 21 22 23 66 67 68 69 70 71
node 3 size: 193519 MB
node 3 free: 193272 MB
node 4 cpus: 24 25 26 27 28 29 72 73 74 75 76 77
node 4 size: 193519 MB
node 4 free: 192705 MB
node 5 cpus: 30 31 32 33 34 35 78 79 80 81 82 83
node 5 size: 193519 MB
node 5 free: 193324 MB
node 6 cpus: 36 37 38 39 40 41 84 85 86 87 88 89
node 6 size: 193485 MB
node 6 free: 193287 MB
node 7 cpus: 42 43 44 45 46 47 90 91 92 93 94 95
node 7 size: 193325 MB
node 7 free: 193142 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

```

From /proc/meminfo

```

MemTotal:      1584828924 kB
HugePages_Total:      0
Hugepagesize:    2048 kB

```

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

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

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### Platform Notes (Continued)

os-release:

```
NAME="SLES"
VERSION="15-SP4"
VERSION_ID="15.4"
PRETTY_NAME="SUSE Linux Enterprise Server 15 SP4"
ID="sles"
ID_LIKE="suse"
ANSI_COLOR="0;32"
CPE_NAME="cpe:/o:suse:sles:15:sp4"
```

uname -a:

```
Linux localhost 5.14.21-150400.22-default #1 SMP PREEMPT_DYNAMIC Wed May 11 06:57:18
UTC 2022 (49db222) 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: Retpolines, 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 3 Jan 8 01:28

```
SPEC is set to: /home/cpu2017-1.1.8-amd-aocc400-genoa-Blb
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda2       xfs   446G   32G  415G   8% /
```

From /sys/devices/virtual/dmi/id

```
Vendor:      Lenovo
Product:     ThinkSystem SR665 V3 MB,Genoa,Kauai,DDR5,Kauai,2U
Product Family: ThinkSystem
Serial:      1234567890
```

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

(Continued on next page)



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### Platform Notes (Continued)

frequent changes to hardware, firmware, and the "DMTF SMBIOS" standard.

Memory:

23x SK Hynix HMC94AEBRA102N 64 GB 2 rank 4800

1x SK Hynix HMC94AEBRA109N 64 GB 2 rank 4800

BIOS:

BIOS Vendor: Lenovo

BIOS Version: KAE105L-1.20

BIOS Date: 12/29/2022

BIOS Revision: 1.20

Firmware Revision: 1.20

(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 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

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## Compiler Version Notes (Continued)

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## 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,-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

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## Base Optimization Flags (Continued)

C++ benchmarks (continued):

```
-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
```

## Peak Compiler Invocation

C benchmarks:

```
clang
```

C++ benchmarks:

```
clang++
```

Fortran benchmarks:

```
flang
```



# SPEC CPU®2017 Integer Speed Result

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## Lenovo Global Technology

ThinkSystem SR665 V3  
(2.90 GHz,AMD EPYC 9254)

SPECspeed®2017\_int\_base = 15.4

SPECspeed®2017\_int\_peak = 15.6

**CPU2017 License:** 9017

**Test Sponsor:** Lenovo Global Technology

**Tested by:** Lenovo Global Technology

**Test Date:** Jan-2023

**Hardware Availability:** Feb-2023

**Software Availability:** Nov-2022

## 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
-freemap-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: 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:

(Continued on next page)



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## Peak Optimization Flags (Continued)

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/Lenovo-Platform-SPECcpu2017-Flags-V1.2-Genoa-P.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/Lenovo-Platform-SPECcpu2017-Flags-V1.2-Genoa-P.xml>

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

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