



# SPEC® CPU2017 Integer Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

## Lenovo Global Technology

ThinkSystem SR635  
2.25 GHz, AMD EPYC 7742

SPECspeed2017\_int\_base = 8.81

SPECspeed2017\_int\_peak = 9.16

CPU2017 License: 9017

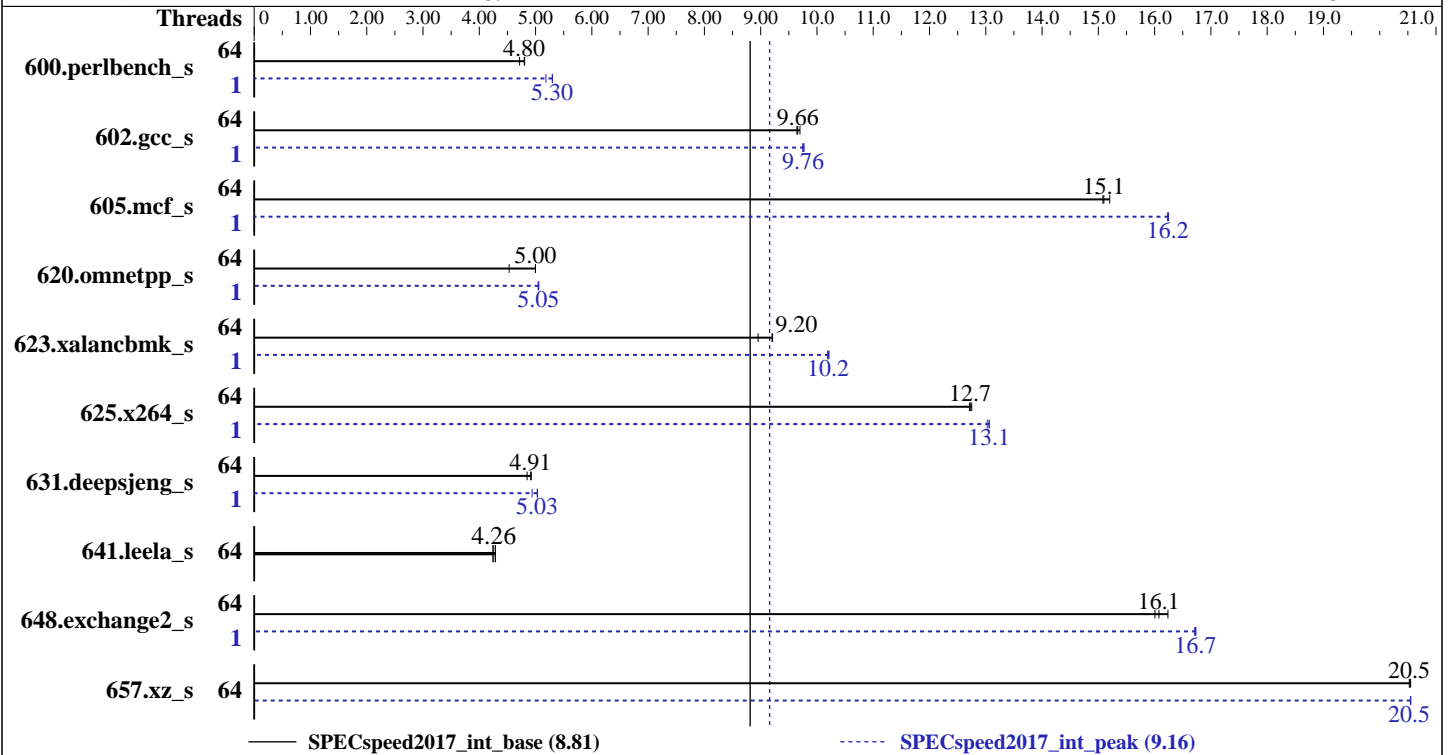
Test Sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test Date: Jul-2019

Hardware Availability: Aug-2019

Software Availability: Aug-2019



### Hardware

CPU Name: AMD EPYC 7742  
 Max MHz.: 3400  
 Nominal: 2250  
 Enabled: 64 cores, 1 chip  
 Orderable: 1 chip  
 Cache L1: 32 KB I + 32 KB D on chip per core  
 L2: 512 KB I+D on chip per core  
 L3: 256 MB I+D on chip per chip,  
 16 MB shared / 4 cores  
 Other: None  
 Memory: 256 GB (8 x 32 GB 2Rx4 PC4-3200AA-R)  
 Storage: 1 x 960 GB SATA SSD  
 Other: None

### Software

OS: SUSE Linux Enterprise Server 15 SP1 (x86\_64)  
 Kernel 4.12.14-195-default  
 Compiler: C/C++/Fortran: Version 2.0.0 of AOCC  
 Parallel: Yes  
 Firmware: Lenovo BIOS Version CFE103B released Jul-2019  
 File System: xfs  
 System State: Run level 3 (multi-user)  
 Base Pointers: 64-bit  
 Peak Pointers: 32/64-bit  
 Other: jemalloc: jemalloc memory allocator library  
 version 5.2.0



# SPEC CPU2017 Integer Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

## Lenovo Global Technology

ThinkSystem SR635  
2.25 GHz, AMD EPYC 7742

SPECspeed2017\_int\_base = 8.81

SPECspeed2017\_int\_peak = 9.16

CPU2017 License: 9017  
Test Sponsor: Lenovo Global Technology  
Tested by: Lenovo Global Technology

Test Date: Jul-2019  
Hardware Availability: Aug-2019  
Software Availability: Aug-2019

## Results Table

Benchmark	Base							Peak						
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
600.perlbench_s	64	<b>370</b>	<b>4.80</b>	369	4.81	376	4.72	1	335	5.30	342	5.18	<b>335</b>	<b>5.30</b>
602.gcc_s	64	<b>412</b>	<b>9.66</b>	411	9.70	413	9.64	1	<b>408</b>	<b>9.76</b>	408	9.77	408	9.75
605.mcf_s	64	313	15.1	<b>313</b>	<b>15.1</b>	311	15.2	1	291	16.2	<b>291</b>	<b>16.2</b>	291	16.2
620.omnetpp_s	64	360	4.53	<b>326</b>	<b>5.00</b>	326	5.00	1	323	5.05	323	5.06	<b>323</b>	<b>5.05</b>
623.xalancbmk_s	64	158	8.95	154	9.21	<b>154</b>	<b>9.20</b>	1	139	10.2	<b>139</b>	<b>10.2</b>	139	10.2
625.x264_s	64	<b>139</b>	<b>12.7</b>	138	12.8	139	12.7	1	135	13.0	135	13.1	<b>135</b>	<b>13.1</b>
631.deepsjeng_s	64	296	4.85	291	4.92	<b>292</b>	<b>4.91</b>	1	290	4.94	285	5.03	<b>285</b>	<b>5.03</b>
641.leela_s	64	398	4.29	402	4.24	<b>401</b>	<b>4.26</b>	64	398	4.29	402	4.24	<b>401</b>	<b>4.26</b>
648.exchange2_s	64	181	16.2	184	16.0	<b>183</b>	<b>16.1</b>	1	<b>176</b>	<b>16.7</b>	176	16.7	176	16.7
657.xz_s	64	301	20.5	<b>301</b>	<b>20.5</b>	301	20.5	64	301	20.6	301	20.5	<b>301</b>	<b>20.5</b>

SPECspeed2017\_int\_base = **8.81**

SPECspeed2017\_int\_peak = **9.16**

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  
'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>
```

Set dirty\_ratio=8 to limit dirty cache to 8% of memory  
Set swappiness=1 to swap only if necessary  
Set zone\_reclaim\_mode=1 to free local node memory and avoid remote memory  
sync then drop\_caches=3 to reset caches before invoking runcpu

dirty\_ratio, swappiness, zone\_reclaim\_mode and drop\_caches were  
all set using privileged echo (e.g. echo 1 > /proc/sys/vm/swappiness).

Transparent huge pages set to 'always' for this run (OS default)



# SPEC CPU2017 Integer Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

**Lenovo Global Technology**

ThinkSystem SR635  
2.25 GHz, AMD EPYC 7742

SPECspeed2017\_int\_base = 8.81

SPECspeed2017\_int\_peak = 9.16

**CPU2017 License:** 9017

**Test Sponsor:** Lenovo Global Technology

**Tested by:** Lenovo Global Technology

**Test Date:** Jul-2019

**Hardware Availability:** Aug-2019

**Software Availability:** Aug-2019

## General Notes

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

GOMP\_CPU\_AFFINITY = "0-63"

LD\_LIBRARY\_PATH = "/home/cpu2017-1.0.5-amd-rome-aocc200/amd\_speed\_aocc200\_rome\_A\_lib/64"

LD\_LIBRARY\_PATH = "\$LD\_LIBRARY\_PATH:/home/cpu2017-1.0.5-amd-rome-aocc200/amd\_speed\_aocc200\_rome\_A\_lib/32"

MALLOC\_CONF = "retain:true"

OMP\_DYNAMIC = "false"

OMP\_SCHEDULE = "static"

OMP\_STACKSIZE = "128M"

OMP\_THREAD\_LIMIT = "64"

Binaries were compiled on a system with 2p AMD EPYC 7601 CPU + 512GB Memory using Fedora 26

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.

Yes: The test sponsor attests, as of date of publication, that CVE-2018-3640 (Spectre variant 3a) is mitigated in the system as tested and documented.

Yes: The test sponsor attests, as of date of publication, that CVE-2018-3639 (Spectre variant 4) is mitigated in the system as tested and documented.

jemalloc: configured and built with GCC 9.1.0 in Ubuntu 19.04

with flags: -O3 -march=znver2 -lto. jemalloc 5.2.0 is available here:

<https://github.com/jemalloc/jemalloc/releases/download/5.2.0/jemalloc-5.2.0.tar.bz2>

## Platform Notes

BIOS settings:

Operating Mode set to Maximum Performance

SMT Mode set to Disabled

EfficiencyModeEn set to Auto

NUMA nodes per socket set to NPS4

Sysinfo program /home/cpu2017-1.0.5-amd-rome-aocc200/bin/sysinfo

Rev: r5974 of 2018-05-19 9bcde8f2999c33d61f64985e45859ea9

running on linux-vapu Mon Jul 22 11:48:09 2019

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 7742 64-Core Processor

1 "physical id"s (chips)

64 "processors"

cores, siblings (Caution: counting these is hw and system dependent. The following

(Continued on next page)



# SPEC CPU2017 Integer Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

## Lenovo Global Technology

ThinkSystem SR635  
2.25 GHz, AMD EPYC 7742

SPECspeed2017\_int\_base = 8.81

SPECspeed2017\_int\_peak = 9.16

**CPU2017 License:** 9017  
**Test Sponsor:** Lenovo Global Technology  
**Tested by:** Lenovo Global Technology

**Test Date:** Jul-2019  
**Hardware Availability:** Aug-2019  
**Software Availability:** Aug-2019

### Platform Notes (Continued)

excerpts from /proc/cpuinfo might not be reliable. Use with caution.)

```
cpu cores : 64
siblings  : 64
physical 0: cores 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 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52
53 54 55 56 57 58 59 60 61 62 63
```

From lscpu:

```
Architecture:          x86_64
CPU op-mode(s):        32-bit, 64-bit
Byte Order:            Little Endian
Address sizes:         43 bits physical, 48 bits virtual
CPU(s):                64
On-line CPU(s) list:   0-63
Thread(s) per core:    1
Core(s) per socket:    64
Socket(s):             1
NUMA node(s):         4
Vendor ID:             AuthenticAMD
CPU family:            23
Model:                49
Model name:            AMD EPYC 7742 64-Core Processor
Stepping:              0
CPU MHz:               2250.000
CPU max MHz:           2250.0000
CPU min MHz:           1500.0000
BogoMIPS:              4491.36
Virtualization:        AMD-V
L1d cache:             32K
L1i cache:             32K
L2 cache:              512K
L3 cache:              16384K
NUMA node0 CPU(s):    0-15
NUMA node1 CPU(s):    16-31
NUMA node2 CPU(s):    32-47
NUMA node3 CPU(s):    48-63
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 noopl xtopology nonstop_tsc cpuid extd_apicid aperfmperf pni
pclmulqdq monitor ssse3 fma cx16 sse4_1 sse4_2 movbe popcnt aes xsave avx fl6c
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_l2 mwaitx cpb
cat_l3 cdp_l3 hw_pstate sme ssbd sev ibrs ibpb stibp vmmcall fsgsbase bmi1 avx2 smep
bmi2 cqm rdt_a rdseed adx smap clflushopt clwb sha_ni xsaveopt xsavec xgetbv1 xsaves
cqm_llc cqm_occup_llc cqm_mbm_total cqm_mbm_local clzero irperf xsaveerptr arat npt
lbrv svm_lock nrip_save tsc_scale vmcb_clean flushbyasid decodeassists pausefilter
pfthreshold avic v_vmsave_vmload vgif umip rdpid overflow_recov succor smca
```

(Continued on next page)



# SPEC CPU2017 Integer Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

## Lenovo Global Technology

ThinkSystem SR635  
2.25 GHz, AMD EPYC 7742

SPECspeed2017\_int\_base = 8.81

SPECspeed2017\_int\_peak = 9.16

CPU2017 License: 9017

Test Sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test Date: Jul-2019

Hardware Availability: Aug-2019

Software Availability: Aug-2019

## Platform Notes (Continued)

```
/proc/cpuinfo cache data
cache size : 512 KB
```

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

```
available: 4 nodes (0-3)
node 0 cpus: 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
node 0 size: 64304 MB
node 0 free: 63997 MB
node 1 cpus: 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
node 1 size: 64469 MB
node 1 free: 64243 MB
node 2 cpus: 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47
node 2 size: 64499 MB
node 2 free: 64329 MB
node 3 cpus: 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63
node 3 size: 64484 MB
node 3 free: 64252 MB
node distances:
node  0  1  2  3
0:  10  12  12  12
1:  12  10  12  12
2:  12  12  10  12
3:  12  12  12  10
```

```
From /proc/meminfo
MemTotal:      263943920 kB
HugePages_Total:      0
Hugepagesize:    2048 kB
```

```
From /etc/*release* /etc/*version*
os-release:
NAME="SLES"
VERSION="15-SP1"
VERSION_ID="15.1"
PRETTY_NAME="SUSE Linux Enterprise Server 15 SP1"
ID="sles"
ID_LIKE="suse"
ANSI_COLOR="0;32"
CPE_NAME="cpe:/o:suse:sles:15:sp1"
```

```
uname -a:
Linux linux-vapu 4.12.14-195-default #1 SMP Tue May 7 10:55:11 UTC 2019 (8fba516)
x86_64 x86_64 x86_64 GNU/Linux
```

Kernel self-reported vulnerability status:

(Continued on next page)



# SPEC CPU2017 Integer Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

**Lenovo Global Technology**

ThinkSystem SR635  
2.25 GHz, AMD EPYC 7742

SPECspeed2017\_int\_base = 8.81

SPECspeed2017\_int\_peak = 9.16

**CPU2017 License:** 9017  
**Test Sponsor:** Lenovo Global Technology  
**Tested by:** Lenovo Global Technology

**Test Date:** Jul-2019  
**Hardware Availability:** Aug-2019  
**Software Availability:** Aug-2019

## Platform Notes (Continued)

CVE-2017-5754 (Meltdown): Not affected  
CVE-2017-5753 (Spectre variant 1): Mitigation: \_\_user pointer sanitization  
CVE-2017-5715 (Spectre variant 2): Mitigation: Full AMD retpoline, IBPB: conditional, IBRS\_FW, STIBP: disabled, RSB filling

run-level 3 Jul 22 11:46

SPEC is set to: /home/cpu2017-1.0.5-amd-rome-aocc200  
Filesystem Type Size Used Avail Use% Mounted on  
/dev/sda2 xfs 893G 19G 874G 3% /

Additional information from dmidecode 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.

BIOS Lenovo CFE103B 07/11/2019  
Memory:  
8x Samsung M393A4K40DB2-CWE 32 kB 2 rank 3200  
8x Unknown Unknown

(End of data from sysinfo program)

## Compiler Version Notes

=====  
CXXC 623.xalancbmk\_s(peak)  
=====

AOCC.LLVM.2.0.0.B179.2019\_06\_12 clang version 8.0.0 (CLANG: Jenkins  
AOCC\_2\_0\_0-Build#179) (based on LLVM AOCC.LLVM.2.0.0.B179.2019\_06\_12)  
Target: i386-unknown-linux-gnu  
Thread model: posix  
InstalledDir: /opt/AMD/aocc-compiler-2.0.0/bin  
=====

=====  
CC 600.perlbench\_s(base) 602.gcc\_s(base, peak) 605.mcf\_s(base, peak)  
625.x264\_s(base) 657.xz\_s(base, peak)  
=====

AOCC.LLVM.2.0.0.B179.2019\_06\_12 clang version 8.0.0 (CLANG: Jenkins  
AOCC\_2\_0\_0-Build#179) (based on LLVM AOCC.LLVM.2.0.0.B179.2019\_06\_12)  
Target: x86\_64-unknown-linux-gnu  
Thread model: posix  
InstalledDir: /opt/AMD/aocc-compiler-2.0.0/bin  
=====

(Continued on next page)



# SPEC CPU2017 Integer Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

**Lenovo Global Technology**

ThinkSystem SR635  
2.25 GHz, AMD EPYC 7742

SPECspeed2017\_int\_base = 8.81

SPECspeed2017\_int\_peak = 9.16

**CPU2017 License:** 9017

**Test Sponsor:** Lenovo Global Technology

**Tested by:** Lenovo Global Technology

**Test Date:** Jul-2019

**Hardware Availability:** Aug-2019

**Software Availability:** Aug-2019

## Compiler Version Notes (Continued)

=====  
CXXC 620.omnetpp\_s(base, peak) 623.xalancbmk\_s(base) 631.deepsjeng\_s(base, peak) 641.leela\_s(base, peak)  
=====

-----  
AOCC.LLVM.2.0.0.B179.2019\_06\_12 clang version 8.0.0 (CLANG: Jenkins  
AOCC\_2\_0\_0-Build#179) (based on LLVM AOCC.LLVM.2.0.0.B179.2019\_06\_12)  
Target: x86\_64-unknown-linux-gnu  
Thread model: posix  
InstalledDir: /opt/AMD/aocc-compiler-2.0.0/bin  
-----

=====  
FC 648.exchange2\_s(base, peak)  
=====

-----  
AOCC.LLVM.2.0.0.B179.2019\_06\_12 clang version 8.0.0 (CLANG: Jenkins  
AOCC\_2\_0\_0-Build#179) (based on LLVM AOCC.LLVM.2.0.0.B179.2019\_06\_12)  
Target: x86\_64-unknown-linux-gnu  
Thread model: posix  
InstalledDir: /opt/AMD/aocc-compiler-2.0.0/bin  
-----

=====  
CC 600.perlbench\_s(peak) 625.x264\_s(peak)  
=====

-----  
AOCC.LLVM.2.0.0.B179.2019\_06\_12 clang version 8.0.0 (CLANG: Jenkins  
AOCC\_2\_0\_0-Build#179) (based on LLVM AOCC.LLVM.2.0.0.B179.2019\_06\_12)  
Target: x86\_64-unknown-linux-gnu  
Thread model: posix  
InstalledDir: /opt/AMD/aocc-compiler-2.0.0/bin  
-----

## Base Compiler Invocation

C benchmarks:

clang

C++ benchmarks:

clang++

Fortran benchmarks:

flang



# SPEC CPU2017 Integer Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Lenovo Global Technology

SPECspeed2017\_int\_base = 8.81

ThinkSystem SR635  
2.25 GHz, AMD EPYC 7742

SPECspeed2017\_int\_peak = 9.16

CPU2017 License: 9017

Test Sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test Date: Jul-2019

Hardware Availability: Aug-2019

Software Availability: Aug-2019

## 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:

```
-flto -Wl,-mllvm -Wl,-function-specialize
-Wl,-mllvm -Wl,-region-vectorize -Wl,-mllvm -Wl,-vector-library=LIBMVEC
-Wl,-mllvm -Wl,-reduce-array-computations=3 -O3 -ffast-math
-march=znver2 -fstruct-layout=3 -mllvm -unroll-threshold=50
-freemap-arrays -mllvm -function-specialize -mllvm -enable-gvn-hoist
-mllvm -reduce-array-computations=3 -mllvm -global-vectorize-slp
-mllvm -vector-library=LIBMVEC -mllvm -inline-threshold=1000
-flv-function-specialization -z muldefs -DSPEC_OPENMP -fopenmp
-fopenmp=libomp -lomp -lpthread -ldl -lmvec -lamdlibm -ljemalloc
-lflang
```

C++ benchmarks:

```
-flto -Wl,-mllvm -Wl,-function-specialize
-Wl,-mllvm -Wl,-region-vectorize -Wl,-mllvm -Wl,-vector-library=LIBMVEC
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-suppress-fmas -O3 -ffast-math -march=znver2
-mllvm -loop-unswitch-threshold=200000 -mllvm -vector-library=LIBMVEC
-mllvm -unroll-threshold=100 -flv-function-specialization
-mllvm -enable-partial-unswitch -z muldefs -DSPEC_OPENMP -fopenmp
-fopenmp=libomp -lomp -lpthread -ldl -lmvec -lamdlibm -ljemalloc
-lflang
```

Fortran benchmarks:

```
-flto -Wl,-mllvm -Wl,-function-specialize
-Wl,-mllvm -Wl,-region-vectorize -Wl,-mllvm -Wl,-vector-library=LIBMVEC
-Wl,-mllvm -Wl,-reduce-array-computations=3 -ffast-math
-Wl,-mllvm -Wl,-inline-recursion=4 -Wl,-mllvm -Wl,-lsr-in-nested-loop
-Wl,-mllvm -Wl,-enable-iv-split -O3 -march=znver2 -funroll-loops
-Mrecursive -mllvm -vector-library=LIBMVEC -z muldefs
-mllvm -disable-indvar-simplify -mllvm -unroll-aggressive
```

(Continued on next page)





# SPEC CPU2017 Integer Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Lenovo Global Technology

ThinkSystem SR635  
2.25 GHz, AMD EPYC 7742

SPECspeed2017\_int\_base = 8.81

SPECspeed2017\_int\_peak = 9.16

CPU2017 License: 9017

Test Sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test Date: Jul-2019

Hardware Availability: Aug-2019

Software Availability: Aug-2019

## Base Optimization Flags (Continued)

Fortran benchmarks (continued):

```
-mllvm -unroll-threshold=150 -DSPEC_OPENMP -fopenmp -fopenmp=libomp  
-lomp -lpthread -ldl -lmvec -lamdlibm -ljemalloc -lflang
```

## Base Other Flags

C benchmarks:

```
-Wno-return-type -DUSE_OPENMP
```

C++ benchmarks:

```
-Wno-return-type -DUSE_OPENMP
```

Fortran benchmarks:

```
-DUSE_OPENMP -Wno-return-type
```

## Peak Compiler Invocation

C benchmarks:

```
clang
```

C++ benchmarks:

```
clang++
```

Fortran benchmarks:

```
flang
```

## Peak 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 -D_FILE_OFFSET_BITS=64  
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 CPU2017 Integer Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

## Lenovo Global Technology

ThinkSystem SR635  
2.25 GHz, AMD EPYC 7742

SPECspeed2017\_int\_base = 8.81

SPECspeed2017\_int\_peak = 9.16

CPU2017 License: 9017

Test Sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test Date: Jul-2019

Hardware Availability: Aug-2019

Software Availability: Aug-2019

## Peak Optimization Flags

C benchmarks:

```
600.perlbench_s: -flto -Wl,-mllvm -Wl,-function-specialize
-Wl,-mllvm -Wl,-region-vectorize
-Wl,-mllvm -Wl,-vector-library=LIBMVEC
-Wl,-mllvm -Wl,-reduce-array-computations=3
-fprofile-instr-generate(pass 1)
-fprofile-instr-use(pass 2) -Ofast -march=znver2
-mno-sse4a -fstruct-layout=5
-mllvm -vectorize-memory-aggressively
-mllvm -function-specialize -mllvm -enable-gvn-hoist
-mllvm -unroll-threshold=50 -fremap-arrays
-mllvm -vector-library=LIBMVEC
-mllvm -reduce-array-computations=3
-mllvm -global-vectorize-slp -mllvm -inline-threshold=1000
-flv-function-specialization -DSPEC_OPENMP -fopenmp
-lmvec -lamdlibm -fopenmp=libomp -lomp -lpthread -ldl
-ljemalloc -lflang
```

```
602.gcc_s: -flto -Wl,-mllvm -Wl,-function-specialize
-Wl,-mllvm -Wl,-region-vectorize
-Wl,-mllvm -Wl,-vector-library=LIBMVEC
-Wl,-mllvm -Wl,-reduce-array-computations=3 -Ofast
-march=znver2 -mno-sse4a -fstruct-layout=5
-mllvm -vectorize-memory-aggressively
-mllvm -function-specialize -mllvm -enable-gvn-hoist
-mllvm -unroll-threshold=50 -fremap-arrays
-mllvm -vector-library=LIBMVEC
-mllvm -reduce-array-computations=3
-mllvm -global-vectorize-slp -mllvm -inline-threshold=1000
-flv-function-specialization -z muldefs -DSPEC_OPENMP
-fopenmp -fgnu89-inline -fopenmp=libomp -lomp -lpthread
-ldl -ljemalloc
```

```
605.mcf_s: -flto -Wl,-mllvm -Wl,-function-specialize
-Wl,-mllvm -Wl,-region-vectorize
-Wl,-mllvm -Wl,-vector-library=LIBMVEC
-Wl,-mllvm -Wl,-reduce-array-computations=3 -Ofast
-march=znver2 -mno-sse4a -fstruct-layout=5
-mllvm -vectorize-memory-aggressively
-mllvm -function-specialize -mllvm -enable-gvn-hoist
-mllvm -unroll-threshold=50 -fremap-arrays
-mllvm -vector-library=LIBMVEC
-mllvm -reduce-array-computations=3
-mllvm -global-vectorize-slp -mllvm -inline-threshold=1000
-flv-function-specialization -DSPEC_OPENMP -fopenmp
```

(Continued on next page)



# SPEC CPU2017 Integer Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Lenovo Global Technology

ThinkSystem SR635  
2.25 GHz, AMD EPYC 7742

SPECspeed2017\_int\_base = 8.81

SPECspeed2017\_int\_peak = 9.16

CPU2017 License: 9017

Test Sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test Date: Jul-2019

Hardware Availability: Aug-2019

Software Availability: Aug-2019

## Peak Optimization Flags (Continued)

605.mcf\_s (continued):

```
-lmvec -lamdlibm -fopenmp=libomp -lomp -lpthread -ldl  
-ljemalloc -lflang
```

625.x264\_s: Same as 600.perlbench\_s

```
657.xz_s: -flto -Wl,-mllvm -Wl,-function-specialize  
-Wl,-mllvm -Wl,-region-vectorize  
-Wl,-mllvm -Wl,-vector-library=LIBMVEC  
-Wl,-mllvm -Wl,-reduce-array-computations=3 -Ofast  
-march=znver2 -mno-sse4a -fstruct-layout=5  
-mllvm -vectorize-memory-aggressively  
-mllvm -function-specialize -mllvm -enable-gvn-hoist  
-mllvm -unroll-threshold=50 -fremap-arrays  
-mllvm -vector-library=LIBMVEC  
-mllvm -reduce-array-computations=3  
-mllvm -global-vectorize-slp -mllvm -inline-threshold=1000  
-flv-function-specialization -DSPEC_OPENMP -fopenmp  
-fopenmp=libomp -lomp -lpthread -ldl -lmvec -lamdlibm  
-ljemalloc -lflang
```

C++ benchmarks:

```
620.omnetpp_s: -flto -Wl,-mllvm -Wl,-function-specialize  
-Wl,-mllvm -Wl,-region-vectorize  
-Wl,-mllvm -Wl,-vector-library=LIBMVEC  
-Wl,-mllvm -Wl,-reduce-array-computations=3 -Ofast  
-march=znver2 -flv-function-specialization  
-mllvm -unroll-threshold=100  
-mllvm -enable-partial-unswitch  
-mllvm -loop-unswitch-threshold=200000  
-mllvm -vector-library=LIBMVEC  
-mllvm -inline-threshold=1000 -DSPEC_OPENMP -fopenmp  
-fopenmp=libomp -lomp -lpthread -ldl -lmvec -lamdlibm  
-ljemalloc -lflang
```

```
623.xalancbmk_s: -m32 -flto -Wl,-mllvm -Wl,-function-specialize  
-Wl,-mllvm -Wl,-region-vectorize  
-Wl,-mllvm -Wl,-vector-library=LIBMVEC  
-Wl,-mllvm -Wl,-reduce-array-computations=3 -Ofast  
-march=znver2 -flv-function-specialization  
-mllvm -unroll-threshold=100  
-mllvm -enable-partial-unswitch  
-mllvm -loop-unswitch-threshold=200000  
-mllvm -vector-library=LIBMVEC  
-mllvm -inline-threshold=1000 -DSPEC_OPENMP -fopenmp
```

(Continued on next page)



# SPEC CPU2017 Integer Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

**Lenovo Global Technology**

ThinkSystem SR635  
2.25 GHz, AMD EPYC 7742

SPECspeed2017\_int\_base = 8.81

SPECspeed2017\_int\_peak = 9.16

**CPU2017 License:** 9017

**Test Sponsor:** Lenovo Global Technology

**Tested by:** Lenovo Global Technology

**Test Date:** Jul-2019

**Hardware Availability:** Aug-2019

**Software Availability:** Aug-2019

## Peak Optimization Flags (Continued)

623.xalancbmk\_s (continued):

-fopenmp=libomp -lomp -lpthread -ldl -ljemalloc

631.deepsjeng\_s: Same as 620.omnetpp\_s

641.leela\_s: basepeak = yes

Fortran benchmarks:

-flto -Wl,-mllvm -Wl,-function-specialize  
-Wl,-mllvm -Wl,-region-vectorize -Wl,-mllvm -Wl,-vector-library=LIBMVEC  
-Wl,-mllvm -Wl,-reduce-array-computations=3 -ffast-math  
-Wl,-mllvm -Wl,-inline-recursion=4 -Wl,-mllvm -Wl,-lsr-in-nested-loop  
-Wl,-mllvm -Wl,-enable-iv-split -O3 -march=znver2 -funroll-loops  
-Mrecursive -mllvm -vector-library=LIBMVEC  
-mllvm -disable-indvar-simplify -mllvm -unroll-aggressive  
-mllvm -unroll-threshold=150 -DSPEC\_OPENMP -fopenmp -fopenmp=libomp  
-lomp -lpthread -ldl -lmvec -lamdlibm -ljemalloc -lflang

## Peak Other Flags

C benchmarks:

-Wno-return-type -DUSE\_OPENMP

C++ benchmarks (except as noted below):

-Wno-return-type -DUSE\_OPENMP

623.xalancbmk\_s: -Wno-return-type -DUSE\_OPENMP

-L/sppo/dev/cpu2017/amd\_speed\_aocc200\_rome/amd\_speed\_aocc200\_rome\_A\_lib/32

Fortran benchmarks:

-DUSE\_OPENMP -Wno-return-type

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

<http://www.spec.org/cpu2017/flags/aocc200-flags-A1.html>

<http://www.spec.org/cpu2017/flags/Lenovo-Platform-SPECcpu2017-Flags-V1.2-Rome-A.html>

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

<http://www.spec.org/cpu2017/flags/aocc200-flags-A1.xml>

<http://www.spec.org/cpu2017/flags/Lenovo-Platform-SPECcpu2017-Flags-V1.2-Rome-A.xml>



# SPEC CPU2017 Integer Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

**Lenovo Global Technology**

ThinkSystem SR635  
2.25 GHz, AMD EPYC 7742

SPECspeed2017\_int\_base = 8.81

SPECspeed2017\_int\_peak = 9.16

**CPU2017 License:** 9017

**Test Sponsor:** Lenovo Global Technology

**Tested by:** Lenovo Global Technology

**Test Date:** Jul-2019

**Hardware Availability:** Aug-2019

**Software Availability:** Aug-2019

SPEC is a registered trademark 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 CPU2017 v1.0.5 on 2019-07-21 23:48:09-0400.

Report generated on 2019-08-08 11:12:31 by CPU2017 PDF formatter v6067.

Originally published on 2019-08-08.