## Lenovo Global Technology

**ThinkSystem SR655**

- **CPU Name:** AMD EPYC 7713
- **Max MHz:** 3675
- **Nominal:** 2000
- **Enabled:** 64 cores, 1 chip, 2 threads/core
- **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, 32 MB shared / 8 cores
- **Other:** None
- **Memory:** 256 GB (8 x 32 GB 2Rx4 PC4-3200AA-R)
- **Storage:** 1 x 960 GB SATA SSD
- **Other:** None

<table>
<thead>
<tr>
<th>Threads</th>
<th>SPECspeed®2017_int_base</th>
<th>SPECspeed®2017_int_peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>64</td>
<td>12.5</td>
<td>12.6</td>
</tr>
<tr>
<td>64</td>
<td>13.6</td>
<td>21.0</td>
</tr>
<tr>
<td>64</td>
<td>8.66</td>
<td>8.79</td>
</tr>
<tr>
<td>64</td>
<td>14.1</td>
<td>17.2</td>
</tr>
<tr>
<td>64</td>
<td>6.57</td>
<td>5.83</td>
</tr>
<tr>
<td>64</td>
<td>23.6</td>
<td>24.1</td>
</tr>
<tr>
<td>64</td>
<td>24.2</td>
<td></td>
</tr>
</tbody>
</table>

## Software

- **OS:** SUSE Linux Enterprise Server 15 SP2 (x86_64)
- **Kernel:** 5.3.18-22-default
- **Compiler:** C/C++/Fortran: Version 3.0.0 of AOCC
- **Parallel:** Yes
- **Firmware:** Lenovo BIOS Version CFE125U 6.0 released May-2021
- **File System:** xfs
- **System State:** Run level 3 (multi-user)
- **Base Pointers:** 64-bit
- **Peak Pointers:** 64-bit
- **Other:** jemalloc: jemalloc memory allocator library v5.1.0
- **Power Management:** BIOS and OS set to prefer performance at the cost of additional power usage
Lenovo Global Technology
ThinkSystem SR655
2.00 GHz, AMD EPYC 7713

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

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Threads</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>600.perlbench_s</td>
<td>64</td>
<td>246</td>
<td>7.21</td>
<td>246</td>
<td>7.21</td>
<td>246</td>
<td>7.21</td>
<td>246</td>
<td>7.21</td>
</tr>
<tr>
<td>602.gcc_s</td>
<td>64</td>
<td>294</td>
<td>13.5</td>
<td>292</td>
<td>13.6</td>
<td>293</td>
<td>13.6</td>
<td>1</td>
<td>292</td>
</tr>
<tr>
<td>605.mcf_s</td>
<td>64</td>
<td>225</td>
<td>21.0</td>
<td>225</td>
<td>21.0</td>
<td>225</td>
<td>21.0</td>
<td>64</td>
<td>225</td>
</tr>
<tr>
<td>620.omnetpp_s</td>
<td>64</td>
<td>186</td>
<td>8.75</td>
<td>189</td>
<td>8.63</td>
<td>188</td>
<td>8.66</td>
<td>1</td>
<td>184</td>
</tr>
<tr>
<td>623.xalanchmk_s</td>
<td>64</td>
<td>100</td>
<td>14.1</td>
<td>101</td>
<td>14.1</td>
<td>98.9</td>
<td>14.3</td>
<td>1</td>
<td>99.4</td>
</tr>
<tr>
<td>625.x264_s</td>
<td>64</td>
<td>102</td>
<td>17.3</td>
<td>102</td>
<td>17.2</td>
<td>102</td>
<td>17.2</td>
<td>1</td>
<td>102</td>
</tr>
<tr>
<td>631.deepsjeng_s</td>
<td>64</td>
<td>218</td>
<td>6.57</td>
<td>217</td>
<td>6.59</td>
<td>219</td>
<td>6.54</td>
<td>64</td>
<td>218</td>
</tr>
<tr>
<td>641.leela_s</td>
<td>64</td>
<td>292</td>
<td>5.83</td>
<td>293</td>
<td>5.83</td>
<td>293</td>
<td>5.83</td>
<td>1</td>
<td>293</td>
</tr>
<tr>
<td>648.exchange2_s</td>
<td>64</td>
<td>125</td>
<td>23.6</td>
<td>125</td>
<td>23.5</td>
<td>125</td>
<td>23.6</td>
<td>1</td>
<td>125</td>
</tr>
<tr>
<td>657.xz_s</td>
<td>64</td>
<td>256</td>
<td>24.1</td>
<td>256</td>
<td>24.2</td>
<td>257</td>
<td>24.1</td>
<td>64</td>
<td>255</td>
</tr>
</tbody>
</table>

SPECspeed®2017_int_base = 12.5
SPECspeed®2017_int_peak = 12.6

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
'ulimit -l 2097152' was used to set environment locked pages in memory limit
runcpu command invoked through numactl i.e.:
umactl --interleave=all runcpu <etc>
'echo 8 > /proc/sys/vm/dirty_ratio' run as root to limit dirty cache to 8% of memory.
'echo 1 > /proc/sys/vm/swappiness' run as root to limit swap usage to minimum necessary.
'echo 1 > /proc/sys/vm/zone_reclaim_mode' run as root to free node-local memory and avoid remote memory usage.
sync; echo 3 > /proc/sys/vm/drop_caches' run as root to reset filesystem caches.
sysctl -w kernel.randomize_va_space=0' run as root to disable address space layout randomization (ASLR) to reduce run-to-run variability.
To enable Transparent Hugepages (THP) for all allocations,
'echo always > /sys/kernel/mm/transparent_hugepage/enabled' and

(Continued on next page)
Lenovo Global Technology

ThinkSystem SR655
2.00 GHz, AMD EPYC 7713

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

Test Date: Jun-2021
Hardware Availability: Jun-2021
Software Availability: Mar-2021

SPECspeed®2017_int_base = 12.5
SPECspeed®2017_int_peak = 12.6

Operating System Notes (Continued)
'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 = "0-127"
LD_LIBRARY_PATH = "/home/cpu2017-1.1.8-amd-aocc300-milan-B1/amd_speed_aocc300_milan_B_lib/
64;/home/cpu2017-1.1.8-amd-aocc300-milan-B1/amd_speed_aocc300_milan_B_lib/
64:":
MALLOC_CONF = "retain:true"
OMP_DYNAMIC = "false"
OMP_SCHEDULE = "static"
OMP_STACKSIZE = "128M"
OMP_THREAD_LIMIT = "128"

Environment variables set by runcpu during the 602.gcc_s peak run:
GOMP_CPU_AFFINITY = "0"

Environment variables set by runcpu during the 620.omnetpp_s peak run:
GOMP_CPU_AFFINITY = "0"

Environment variables set by runcpu during the 623.xalancbmk_s peak run:
GOMP_CPU_AFFINITY = "0"

Environment variables set by runcpu during the 625.x264_s peak run:
GOMP_CPU_AFFINITY = "0"

Environment variables set by runcpu during the 641.leela_s peak run:
GOMP_CPU_AFFINITY = "0"

Environment variables set by runcpu during the 648.exchange2_s peak run:
GOMP_CPU_AFFINITY = "0"

Environment variables set by runcpu during the 657.xz_s peak run:
GOMP_CPU_AFFINITY = "0-63"

General Notes
Binaries were compiled on a system with 2x AMD EPYC 7742 CPU + 1TiB Memory using openSUSE 15.2

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.

(Continued on next page)
Lenovo Global Technology
ThinkSystem SR655
2.00 GHz, AMD EPYC 7713

<table>
<thead>
<tr>
<th>SPECspeed®2017_int_peak</th>
<th>12.6</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECspeed®2017_int_base</td>
<td>12.5</td>
</tr>
</tbody>
</table>

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

Test Date: Jun-2021
Hardware Availability: Jun-2021
Software Availability: Mar-2021

General Notes (Continued)
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.

jemalloc: configured and built with GCC v4.8.2 in RHEL 7.4 (No options specified)
jemalloc 5.1.0 is available here:
https://github.com/jemalloc/jemalloc/releases/download/5.1.0/jemalloc-5.1.0.tar.bz2

Platform Notes

BIOS configuration:
Choose Operating Mode set to Maximum Performance
SOC P-states set to P0
NUMA nodes per socket set to NPS2

Sysinfo program /home/cpu2017-1.1.8-amd-aocc300-milan-B1/bin/sysinfo
Rev: r6622 of 2021-04-07 982a61ec0915b55891e0f6e164acfc64d
running on localhost Fri Apr 17 21:15:09 2020

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 7713 64-Core Processor
  1 "physical id"s (chips)
128 "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 : 64
siblings : 128
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 from util-linux 2.33.1:
Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Byte Order: Little Endian
Address sizes: 48 bits physical, 48 bits virtual
CPU(s): 128
On-line CPU(s) list: 0-127
Thread(s) per core: 2
Core(s) per socket: 64
Socket(s): 1
NUMA node(s): 2
Vendor ID: AuthenticAMD

(Continued on next page)
Lenovo Global Technology
ThinkSystem SR655
2.00 GHz, AMD EPYC 7713

SPEC CPU®2017 Integer Speed Result

Copyright 2017-2021 Standard Performance Evaluation Corporation

SPECspeed®2017_int_base = 12.5
SPECspeed®2017_int_peak = 12.6

CPU2017 License: 9017
Test Sponsor: Lenovo Global Technology
Tested by: Lenovo Global Technology
Test Date: Jun-2021
Hardware Availability: Jun-2021
Software Availability: Mar-2021

Platform Notes (Continued)

CPU family: 25
Model: 1
Model name: AMD EPYC 7713 64-Core Processor
Stepping: 1
CPU MHz: 1795.998
CPU max MHz: 2000.0000
CPU min MHz: 1500.0000
BogoMIPS: 3992.41
Virtualization: AMD-V
L1d cache: 32K
L1i cache: 32K
L2 cache: 512K
L3 cache: 32768K
NUMA node0 CPU(s): 0-31, 64-95
NUMA node1 CPU(s): 32-63, 96-127
Flags: fpu vme de pse tsc msr pae mca 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 nop1 nonstop_tsc cpuid extd_apicid aperfmperf pni pclmulqdq
monitor ssse3 fma cx16 pcid sse4_1 sse4_2 movbe popcnt aes avx f16c rdrand
lahf_lm cmp_legacy svm extapic cr8_legacy abm sse4a misalignsse 3nowprefetch osvw
ibs skinit tdc topoext perfctr_core perfctr_nb bperfx perfctr_l1c mwaitx cpb
cat_l3 cdpl3 invpcid_single hw_pstate ssbd mba ibrs ibpb stibp vmmcall fsgsbase
bmi1 avx2 smep bmi2 ersm invpcid cmqm rdt_a rdseed adx smap clflushopt clwb sha_ni
xsaves opt xsaveopt xsaveic xgetbv1 xsaves cmqm_l1c cmqm_occup_l1c cmqm_mbb_total cmqm_mbb_local
cilero irperf xsaveerptr wbnoinvd arat npt ibv svm_lock nrpl_save tsc_scale
vmcb_clean flushbyasid decodeassists pausefilter pfthreshold v_vmsave_vmlast vgif
upm pkup osipe vaes vpclmulqdq rdpdird overflow_recover succes smca

/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: 2 nodes (0-1)
node 0 cpus: 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 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88
89 90 91 92 93 94 95
node 0 size: 128821 MB
node 0 free: 128814 MB
node 1 cpus: 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 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112
113 114 115 116 117 118 119 120 121 122 123 124 125 126 127
node 1 size: 128960 MB
node 1 free: 128950 MB
node distances:
node 0 1
0: 10 12

(Continued on next page)
Platform Notes (Continued)

1:  12  10

From /proc/meminfo
MemTotal:       263968536 kB
HugePages_Total:       0
Hugepagesize:       2048 kB

/sys/devices/system/cpu/cpu*/cpufreq/scaling_governor has performance

/usr/bin/lsb_release -d
SUSE Linux Enterprise Server 15 SP2

From /etc/*release* /etc/*version*
os-release:
NAME="SLES"
VERSION="15-SP2"
VERSION_ID="15.2"
PRETTY_NAME="SUSE Linux Enterprise Server 15 SP2"
ID="sles"
ID_LIKE="suse"
ANSI_COLOR="0;32"
CPE_NAME="cpe:/o:suse:sles:15:sp2"

uname -a:
Linux localhost 5.3.18-22-default #1 SMP Wed Jun 3 12:16:43 UTC 2020 (720aeba) 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: Full AMD retpoline,
                                                      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 Apr 17 21:13

(Continued on next page)
**Lenovo Global Technology**

**ThinkSystem SR655**
2.00 GHz, AMD EPYC 7713

---

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

---

**Platform Notes (Continued)**

SPEC is set to: /home/cpu2017-1.1.8-amd-aocc300-milan-B1

Filesystem Type Size Used Avail Use% Mounted on  
/dev/md126p3 xfs 892G 89G 803G 10% /

From /sys/devices/virtual/dmi/id  
Vendor: Lenovo  
Product: ThinkSystem SR655 -[7Y00000000]-  
Product Family: ThinkSystem  
Serial: 0123456789

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

Memory:  
8x Samsung M393A4K40DB3-CWE 32 GB 2 rank 3200  
8x Unknown Unknown

BIOS:  
BIOS Vendor: Lenovo  
BIOS Version: CFE125U  
BIOS Date: 05/28/2021  
BIOS Revision: 6.0

(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 12.0.0 (CLANG: AOCC_3.0.0-Build#78 2020_12_10) (based on LLVM Mirror.Version.12.0.0)
Target: x86_64-unknown-linux-gnu  
Thread model: posix  
InstalledDir: /opt/AMD/aocc-compiler-3.0.0/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 12.0.0 (CLANG: AOCC_3.0.0-Build#78 2020_12_10) (based on LLVM Mirror.Version.12.0.0)

(Continued on next page)
**Lenovo Global Technology**

ThinkSystem SR655  
2.00 GHz, AMD EPYC 7713

---

**Compiler Version Notes (Continued)**

Target: x86_64-unknown-linux-gnu  
Thread model: posix  
InstalledDir: /opt/AMD/aocc-compiler-3.0.0/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.xalancmk_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 2017-2021 Standard Performance Evaluation Corporation

Lenovo Global Technology
ThinkSystem SR655
2.00 GHz, AMD EPYC 7713

SPECspeed®2017_int_base = 12.5
SPECspeed®2017_int_peak = 12.6

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

Test Date: Jun-2021
Hardware Availability: Jun-2021
Software Availability: Mar-2021

Base Optimization Flags

C benchmarks:
-m64 -mno-adx -mno-sse4a -Wl,-allow-multiple-definition
-Wl,-mllvm -Wl,-enable-lcim-vrp -Wl,-mllvm -Wl,-region-vectorize
-Wl,-mllvm -Wl,-function-specialize
-Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3 -O3 -march=znver3
-fveclib=AMDLIBM -ffast-math -flto -fstruct-layout=5
-mllvm -unroll-threshold=50 -mllvm -inline-threshold=1000
-fremap-arrays -mllvm -function-specialize -flv-function-specialization
-mllvm -enable-gvn-hoist -mllvm -global-vectorize-slp=true
-mllvm -enable-lcim-vrp -mllvm -reduce-array-computations=3 -z muldefs
-DSPEC_OPENMP -fopenmp -fopenmp=libomp -lomp -lamdlibm -ljemalloc
-lflang -lflangrti

C++ benchmarks:
-m64 -std=c++98 -mno-adx -mno-sse4a
-Wl,-mllvm -Wl,-do-block-reorder=aggressive
-Wl,-mllvm -Wl,-region-vectorize -Wl,-mllvm -Wl,-function-specialize
-Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3 -O3 -march=znver3
-fveclib=AMDLIBM -ffast-math -flto -mllvm -enable-partial-unswitch
-mllvm -unroll-threshold=100 -finline-aggressive
-flv-function-specialization -mllvm -loop-unswitch-threshold=200000
-mllvm -reroll-loops -mllvm -aggressive-loop-unswitch
-mllvm -extra-vectorizer-passes -mllvm -reduce-array-computations=3
-mllvm -global-vectorize-slp=true -mllvm -convert-pow-exp-to-int=false
-z muldefs -mllvm -do-block-reorder=aggressive
-fvirtual-function-elimination -fvisibility=hidden -DSPEC_OPENMP
-fopenmp -fopenmp=libomp -lomp -lamdlibm -ljemalloc -lflang
-lflangrti

Fortran benchmarks:
-m64 -mno-adx -mno-sse4a -Wl,-mllvm -Wl,-inline-recursion=4
-Wl,-mllvm -Wl,-lsr-in-nested-loop -Wl,-mllvm -Wl,-enable-lv-split
-Wl,-mllvm -Wl,-region-vectorize -Wl,-mllvm -Wl,-function-specialize
-Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3 -O3 -march=znver3
-fveclib=AMDLIBM -ffast-math -flto -z muldefs
-mllvm -unroll-aggressive -mllvm -unroll-threshold=150 -DSPEC_OPENMP
-fopenmp -fopenmp=libomp -lomp -lamdlibm -ljemalloc -lflang
-lflangrti
# SPEC CPU®2017 Integer Speed Result

## Lenovo Global Technology
ThinkSystem SR655
2.00 GHz, AMD EPYC 7713

<table>
<thead>
<tr>
<th>SPECspeed®2017_int_base = 12.5</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECspeed®2017_int_peak = 12.6</td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Test Date:</th>
<th>Jun-2021</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hardware Availability:</td>
<td>Jun-2021</td>
</tr>
<tr>
<td>Software Availability:</td>
<td>Mar-2021</td>
</tr>
</tbody>
</table>

## Base Other Flags

- C benchmarks: 
  -Wno-unused-command-line-argument -Wno-return-type

- C++ benchmarks: 
  -Wno-unused-command-line-argument -Wno-return-type

- Fortran benchmarks: 
  -Wno-return-type

## 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: -m64 -mno-adx -mno-sse4a -Wl,-allow-multiple-definition 
  -Wl,-mllvm -Wl,-enable-licm-vrp 
  -Wl,-mllvm -Wl,-function-specialize 
  -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6 
  -Wl,-mllvm -Wl,-reduce-array-computations=3 -Ofast 
  -march=znver3 -fveclib=AMDLIBM -ffast-math -flto 
  -fstruct-layout=5 -mllvm -unroll-threshold=50 
  -fremap-arrays -flv-function-specialization 
  -mllvm -inline-threshold=1000 -mllvm -enable-gvn-hoist 
  -mllvm -global-vectorize-slp=true

(Continued on next page)
Lenovo Global Technology

ThinkSystem SR655
2.00 GHz, AMD EPYC 7713

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

Test Date: Jun-2021
Hardware Availability: Jun-2021
Software Availability: Mar-2021

SPECspeed®2017_int_base = 12.5
SPECspeed®2017_int_peak = 12.6

Peak Optimization Flags (Continued)

602.gcc_s (continued):
-mlir -function-specialize -mlir -enable-llicm-vrp
-mlir -reduce-array-computations=3 -DSPEC_OPENMP -fopenmp
-fopenmp=libomp -lomp -lamdlibm -ljemalloc -lflang

605.mcf_s: basepeak = yes

625.x264_s: Same as 602.gcc_s

657.xz_s: Same as 602.gcc_s

C++ benchmarks:

620.omnetpp_s: -m64 -std=c++98 -mno-adx -mno-sse4a
-W1, -mlir -W1, -do-block-reorder=aggressive
-W1, -mlir -W1, -function-specialize
-W1, -mlir -W1, -align-all-nofallthru-blocks=6
-W1, -mlir -W1, -reduce-array-computations=3 -Ofast
-march=znver3 -fveclib=AMDLIBM -ffast-math -flto
-finline-aggressive -mlir -unroll-threshold=100
-flv-function-specialization -mlir -enable-llicm-vrp
-mlir -reroll-loops -mlir -aggressive-loop-unswitch
-mlir -reduce-array-computations=3
-mlir -global-vectorize-slp=true
-mlir -do-block-reorder=aggressive
-fvirtual-function-elimination -fvisibility=hidden
-DSPEC_OPENMP -fopenmp -fopenmp=libomp -lomp -lamdlibm
-ljemalloc -lflang

623.xalancbmk_s: Same as 620.omnetpp_s

631.deepsjeng_s: basepeak = yes

641.leela_s: Same as 620.omnetpp_s

Fortran benchmarks:

-m64 -mno-adx -mno-sse4a -W1, -mlir -W1, -inline-recursion=4
-W1, -mlir -W1, -isr-in-nested-loop -W1, -mlir -W1, -enable-iv-split
-W1, -mlir -W1, -function-specialize
-W1, -mlir -W1, -align-all-nofallthru-blocks=6
-W1, -mlir -W1, -reduce-array-computations=3 -O3 -march=znver3
-fveclib=AMDLIBM -ffast-math -flto -mlir -unroll-aggressive
-mlir -unroll-threshold=150 -DSPEC_OPENMP -fopenmp -fopenmp=libomp
-lomp -lamdlibm -ljemalloc -lflang
Lenovo Global Technology
ThinkSystem SR655
2.00 GHz, AMD EPYC 7713

SPECspeed®2017_int_base = 12.5
SPECspeed®2017_int_peak = 12.6

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

Test Date: Jun-2021
Hardware Availability: Jun-2021
Software Availability: Mar-2021

Peak Other Flags

C benchmarks:
- -Wno-unused-command-line-argument -Wno-return-type

C++ benchmarks:
- -Wno-unused-command-line-argument -Wno-return-type

Fortran benchmarks:
- -Wno-return-type

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-Milan1P-G.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-Milan1P-G.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.

Tested with SPEC CPU®2017 v1.1.8 on 2020-04-17 09:15:08-0400.
Report generated on 2021-07-06 18:45:15 by CPU2017 PDF formatter v6442.
Originally published on 2021-07-06.