## Lenovo Global Technology

**ThinkSystem SR655**  
3.50 GHz, AMD EPYC 73F3

### SPEC CPU®2017 Integer Speed Result

<table>
<thead>
<tr>
<th>Test Date:</th>
<th>Aug-2021</th>
<th>Hardware Availability:</th>
<th>Jun-2021</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU2017 License:</td>
<td>9017</td>
<td>Tested by:</td>
<td>Lenovo Global Technology</td>
</tr>
<tr>
<td>Test Sponsor:</td>
<td>Lenovo Global Technology</td>
<td>Software Availability:</td>
<td>Mar-2021</td>
</tr>
</tbody>
</table>

### Performance Results

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Threads</th>
<th>SPECspeed®2017_int_base</th>
<th>SPECspeed®2017_int_peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>perlbench_s</td>
<td>16</td>
<td>7.86</td>
<td>13.6</td>
</tr>
<tr>
<td>gcc_s</td>
<td>1</td>
<td>14.6</td>
<td>22.5</td>
</tr>
<tr>
<td>mcf_s</td>
<td>1</td>
<td>14.7</td>
<td>22.6</td>
</tr>
<tr>
<td>omnetpp_s</td>
<td>16</td>
<td>9.27</td>
<td></td>
</tr>
<tr>
<td>xalancbmk_s</td>
<td>16</td>
<td>15.5</td>
<td></td>
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<tr>
<td>x264_s</td>
<td>16</td>
<td>13.5</td>
<td></td>
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<tr>
<td>deepsjeng_s</td>
<td>16</td>
<td>7.04</td>
<td></td>
</tr>
<tr>
<td>leela_s</td>
<td>16</td>
<td>6.33</td>
<td></td>
</tr>
<tr>
<td>exchange2_s</td>
<td>16</td>
<td>6.36</td>
<td></td>
</tr>
<tr>
<td>xz_s</td>
<td>16</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Hardware

- **CPU Name:** AMD EPYC 73F3  
- **Max MHz:** 4000  
- **Nominal:** 3500  
- **Enabled:** 16 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 / 2 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 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
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SPECspeed®2017_int_base = 13.5
SPECspeed®2017_int_peak = 13.6

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>
<th>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>600.perlbench_s</td>
<td>16</td>
<td>226</td>
<td>7.86</td>
<td>226</td>
<td>7.85</td>
<td>226</td>
<td>7.87</td>
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<td>226</td>
<td>7.86</td>
<td>226</td>
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<tr>
<td>602.gcc_s</td>
<td>16</td>
<td>274</td>
<td>14.5</td>
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<td>14.6</td>
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<td>605.mcf_s</td>
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<td>16</td>
<td>209</td>
<td>22.6</td>
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<tr>
<td>623.xalanchmk_s</td>
<td>16</td>
<td>94.5</td>
<td>15.0</td>
<td>91.5</td>
<td>15.5</td>
<td>91.5</td>
<td>15.5</td>
<td>1</td>
<td>91.0</td>
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<td>91.2</td>
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<tr>
<td>625.x264_s</td>
<td>16</td>
<td>94.4</td>
<td>18.7</td>
<td>94.4</td>
<td>18.7</td>
<td>94.2</td>
<td>18.7</td>
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<td>94.1</td>
<td>18.8</td>
<td>93.9</td>
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<td>631.deepsjeng_s</td>
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<td>203</td>
<td>7.07</td>
<td>204</td>
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<td>204</td>
<td>7.04</td>
<td>16</td>
<td>203</td>
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<td>204</td>
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<td>641.leela_s</td>
<td>16</td>
<td>270</td>
<td>6.32</td>
<td>269</td>
<td>6.34</td>
<td>270</td>
<td>6.33</td>
<td>1</td>
<td>268</td>
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<td>648.exchange2_s</td>
<td>16</td>
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<td>25.6</td>
<td>115</td>
<td>25.7</td>
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<td>25.6</td>
<td>1</td>
<td>114</td>
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<td>114</td>
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<tr>
<td>657.xz_s</td>
<td>16</td>
<td>235</td>
<td>26.3</td>
<td>234</td>
<td>26.4</td>
<td>235</td>
<td>26.3</td>
<td>16</td>
<td>235</td>
<td>26.3</td>
<td>234</td>
</tr>
</tbody>
</table>

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>
'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
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SPEC CPU®2017 Integer Speed Result

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SPECspeed®2017_int_base = 13.5
SPECspeed®2017_int_peak = 13.6

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

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

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 = "0-31"
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/32:
MALLOC_CONF = "retain:true"
OMP_DYNAMIC = "false"
OMP_SCHEDULE = "static"
OMP_STACKSIZE = "128M"
OMP_THREAD_LIMIT = "32"

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

Environment variables set by runcpu during the 605.mcf_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"

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.
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.

(Continued on next page)
**SPEC CPU®2017 Integer Speed Result**

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<th>SPECspeed®2017_int_base = 13.5</th>
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**General Notes (Continued)**

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
NUMA nodes per socket set to NPS2
SOC P-states set to P0

Sysinfo program /home/cpu2017-1.1.8-amd-aocc300-milan-B1/bin/sysinfo
Rev: r6622 of 2021-04-07 982a61ec0915b55891ef0e16acafe64d
running on localhost Fri Apr 17 21:53:35 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 73F3 16-Core Processor
  1 "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 : 32
physical 0: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
```

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): 32
On-line CPU(s) list: 0-31
Thread(s) per core: 2
Core(s) per socket: 16
Socket(s): 1
NUMA node(s): 2
Vendor ID: AuthenticAMD
CPU family: 25
Model: 1
Model name: AMD EPYC 73F3 16-Core Processor
Stepping: 1
CPU MHz: 3751.120
```

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**SPECspeed®2017_int_base = 13.5**

**SPECspeed®2017_int_peak = 13.6**

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**Platform Notes (Continued)**

- **CPU max MHZ:** 3500.0000
- **CPU min MHZ:** 1500.0000
- **BogoMIPS:** 6986.36
- **Virtualization:** AMD-V
- **L1d cache:** 32K
- **L1i cache:** 32K
- **L2 cache:** 327K
- **L3 cache:** 32768K
- **NUMA node0 CPU(s):** 0-7,16-23
- **NUMA node1 CPU(s):** 8-15,24-31
- **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 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 3dnowprefetch osvw ibs skinit wdt tce topoext perfctr_core perfctr_nb bpec perfctr_l1c mwaitx cpb cat_l3 cdp_l3 invpcid_single hw_pstate ssbd mba ibrs ibpb stibp vmmcall fsgsbse bm1 avx2 smep bmi2  erts invpcid cqom rdtd_crdseed adx smap clflushopt clwb sha ni xsaveopt xsave xgetbv1 xsavees cqm llc cqm_occupa llc cqm_mbmb_total cqm_mbmb_local clzero irperf xsaveerptr xsaveopt xmrsave_vmload vgif umip pkp ospe vae vpclmulqdq rdpd overflow_recov succor 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 16 17 18 19 20 21 22 23
node 0 size: 128789 MB
node 0 free: 128347 MB
node 1 cpus: 8 9 10 11 12 13 14 15 24 25 26 27 28 29 30 31
node 1 size: 129005 MB
node 1 free: 128603 MB
node distances:
node 0: 1
  0: 10 12
  1: 12 10

From /proc/meminfo

```
MemTotal: 263981984 kB
HugePages_Total: 0
Hugepagesize: 2048 kB
```

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

(Continued on next page)
Platform Notes (Continued)

/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/swapsgs
  barriers and __user pointer sanitization
CVE-2017-5715 (Spectre variant 2): Mitigation: Full AMD retpoline,
  IBFP: 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 21:14

SPEC is set to: /home/cpu2017-1.1.8-amd-aocc300-milan-B1
Filesystem Type Size Used Avail Use% Mounted on
/dev/sdb3 xfs 891G 87G 804G 10% /

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

(Continued on next page)
Platform Notes (Continued)

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.leea_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
------------------------------------------------------------------------------
Fortran 648.exchange2_s(base, peak)
------------------------------------------------------------------------------
AMD clang version 12.0.0 (CLANG: AOCC_3.0.0-Build#78 2020_12_10) (based on
(Continued on next page)
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**Compiler Version Notes (Continued)**

LLVM Mirror. Version.12.0.0)  
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.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 -mno-adx -mno-sse4a -W1,-allow-multiple-definition  
-W1,-mlllvm -W1,-enable-lcvm-vrp -W1,-mlllvm -W1,-region-vectorize  
-W1,-mlllvm -W1,-function-specialize  
-W1,-mlllvm -W1,-align-all-nofallthru-blocks=6  
-W1,-mlllvm -W1,-reduce-array-computations=3 -O3 -march=znver3  
-fveclib=AMDLIBM -ffast-math -fhto -fstruct-layout=5  
-mlllvm -unroll-threshold=50 -mlllvm -inline-threshold=1000  
-fremap-arrays -mlllvm -function-specialize -flv-function-specialization

(Continued on next page)
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Base Optimization Flags (Continued)

C benchmarks (continued):
-mlir -enable-gvn-hoist -mlir -global-vectorize-slp=true
-mlir -enable-lcm-vrp -mlir -reduce-array-computations=3 -z muldefs
-DSPEC_OPENMP -fopenmp -fopenmp=libomp -lomp -lamdlibm -ljemalloc
-llang -llangrti

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

Fortran benchmarks:
-m64 -mno-adx -mno-sse4a -Wl,-mlir -Wl,-inline-recursion=4
-Wl,-mlir -Wl,-lsr-in-nested-loop -Wl,-mlir -Wl,-enable-iv-split
-Wl,-mlir -Wl,-region-vectorize -Wl,-mlir -Wl,-function-specialize
-Wl,-mlir -Wl,-align-all-nofallthru-blocks=6
-Wl,-mlir -Wl,-reduce-array-computations=3 -O3 -march=znver3
-fveclib=AMDLIBM -ffast-math -flto -z muldefs
-mlir -unroll-aggressive -mlir -unroll-threshold=150 -DSPEC_OPENMP
-fopenmp -fopenmp=libomp -lomp -lamdlibm -ljemalloc -llang
-llangrti

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
**SPEC CPU®2017 Integer Speed Result**

**Lenovo Global Technology**

ThinkSystem SR655  
3.50 GHz, AMD EPYC 73F3

<table>
<thead>
<tr>
<th>CPU2017 License: 9017</th>
<th>SPECspeed®2017_int_base = 13.5</th>
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<tbody>
<tr>
<td>Test Sponsor: Lenovo Global Technology</td>
<td>SPECspeed®2017_int_peak = 13.6</td>
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**Test Date:** Aug-2021  
**Hardware Availability:** Jun-2021  
**Software Availability:** Mar-2021

### 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  
-W1,-mlllvm -W1,-enable-licm-vrp  
-W1,-mlllvm -W1,-function-specialize  
-W1,-mlllvm -W1,-align-all-nofallthru-blocks=6  
-W1,-mlllvm -W1,-reduce-array-computations=3 -Ofast  
-march=znver3 -fveclib=AMDLIBM -ffast-math -flto  
-fstruct-layout=5 -mlllvm -unroll-threshold=50  
-fremap-arrays -flv-function-specialization  
-mlllvm -inline-threshold=1000 -mlllvm -enable-gvn-hoist  
-mlllvm -global-vectorize-slp=true  
-mlllvm -function-specialize -mlllvm -enable-licm-vrp  
-mlllvm -reduce-array-computations=3 -DSPEC_OPENMP -fopenmp  
-fopenmp=libomp -lomp -lamdlibm -ljemalloc -lflang

605.mcf_s: Same as 602.gcc_s

625.x264_s: Same as 602.gcc_s

657.xz_s: basepeak = yes

C++ benchmarks:

(Continued on next page)
## Lenovo Global Technology

**ThinkSystem SR655**  
**3.50 GHz, AMD EPYC 73F3**

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### SPECspeed®2017_int_base = 13.5

| SPECspeed®2017_int_peak = 13.6 |

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## Peak Optimization Flags (Continued)

620.omnetpp_s: basepeak = yes

623.xalancbmk_s: -m64 -std=c++98 -mno-adx -mno-sse4a  
-Wl,-mllvm -Wl,-do-block-reorder=aggressive  
-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  
-finline-aggressive -mllvm -unroll-threshold=100  
-fllvm-function-specialization -mllvm -enable-licm-vrp  
-mllvm -reroll-loops -mllvm -aggressive-loop-unswitch  
-mllvm -reduce-array-computations=3  
-mllvm -global-vectorize-slp=true  
-mllvm -do-block-reorder=aggressive  
-fvirtual-function-elimination -fvisibility=hidden  
-DSPEC_OPENMP -fopenmp -fopenmp=libomp -lomp -lamdlibm  
-ljemalloc -lflang

631.deepsjeng_s: basepeak = yes

641.leela_s: Same as 623.xalancbmk_s

### Fortran benchmarks:

- m64 -mno-adx -mno-sse4a -Wl,-mllvm -Wl,-inline-recursion=4  
- Wl,-mllvm -Wl,-lsr-in-nested-loop -Wl,-mllvm -Wl,-enable-iv-split  
- 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 -unroll-aggressive  
- mllvm -unroll-threshold=150 -DSPEC_OPENMP -fopenmp -fopenmp=libomp  
- lomp -lamdlibm -ljemalloc -lflang

---

## 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
### Lenovo Global Technology

**ThinkSystem SR655**

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

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

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For questions about this result, please contact the tester. For other inquiries, please contact info@spec.org.

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