Lenovo Global Technology
ThinkSystem SR655
2.60 GHz, AMD EPYC 7513

SPECspeed®2017_fp_base = 144
SPECspeed®2017_fp_peak = 145

Hardware
CPU Name: AMD EPYC 7513
Max MHz: 3650
Nominal: 2600
Enabled: 32 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: 128 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

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
2.60 GHz, AMD EPYC 7513

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

Results Table

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<th>Benchmark</th>
<th>Threads</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
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<tbody>
<tr>
<td>603.bwaves_s</td>
<td>32</td>
<td>173</td>
<td>342</td>
<td>173</td>
<td>341</td>
<td>173</td>
<td>341</td>
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<tr>
<td>607.cactuBSSN_s</td>
<td>32</td>
<td>75.4</td>
<td>221</td>
<td>75.7</td>
<td>220</td>
<td>76.5</td>
<td>218</td>
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<tr>
<td>619.lbm_s</td>
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<td>78.0</td>
<td>67.1</td>
<td>78.0</td>
<td>67.2</td>
<td>78.0</td>
<td>67.2</td>
</tr>
<tr>
<td>621.wrf_s</td>
<td>32</td>
<td>64.5</td>
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<td>64.6</td>
<td>205</td>
<td>64.6</td>
<td>205</td>
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<tr>
<td>627.cam4_s</td>
<td>32</td>
<td>90.6</td>
<td>97.8</td>
<td>91.0</td>
<td>97.4</td>
<td>91.0</td>
<td>97.4</td>
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<tr>
<td>628.pop2_s</td>
<td>32</td>
<td>84.1</td>
<td>189.6</td>
<td>132</td>
<td>89.7</td>
<td>132</td>
<td>89.7</td>
</tr>
<tr>
<td>638.imagick_s</td>
<td>32</td>
<td>70.6</td>
<td>248</td>
<td>70.0</td>
<td>250</td>
<td>70.1</td>
<td>249</td>
</tr>
<tr>
<td>644.nab_s</td>
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<td>66.5</td>
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<tr>
<td>654.roms_s</td>
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<td>105</td>
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<td>151</td>
</tr>
</tbody>
</table>

SPECspeed®2017_fp_base = 144
SPECspeed®2017_fp_peak = 145

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

(Continued on next page)
Lenovo Global Technology

ThinkSystem SR655
2.60 GHz, AMD EPYC 7513

SPECspeed®2017_fp_base = 144
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Operating System Notes (Continued)

'echo always > /sys/kernel/mm/transparent_hugepage/defrag' run as root.
To enable THP only on request for peak runs of 628.pop2_s, and 638.imagick_s,
'echo madvise > /sys/kernel/mm/transparent_hugepage/enabled' run as root.
To disable THP for peak runs of 627.cam4_s, 644.nab_s, 649.fotonik3d_s, and 654.roms_s,
'echo never > /sys/kernel/mm/transparent_hugepage/enabled' 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 619.lbm_s peak run:
GOMP_CPU_AFFINITY = "0 16 1 17 2 18 3 19 4 20 5 21 6 22 7 23 8 24 9 25 10 26
11 27 12 28 13 29 14 30 15 31"

Environment variables set by runcpu during the 654.roms_s peak run:
GOMP_CPU_AFFINITY = "0-31"

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.

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
## Lenovo Global Technology

**ThinkSystem SR655**  
**2.60 GHz, AMD EPYC 7513**

### SPEC CPU2017 Floating Point Speed Result

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<table>
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<tr>
<th>Lenovo Global Technology</th>
<th>SPECspeed®2017_fp_base = 144</th>
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<tr>
<td><strong>Tested by:</strong> Lenovo Global Technology</td>
<td></td>
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</tbody>
</table>

#### CPU2017 License: 9017  
**Test Date:** Aug-2021  
**Hardware Availability:** Jun-2021  
**Software Availability:** Mar-2021

### Platform Notes

**BIOS configuration:**
- Choose Operating Mode set to Maximum Performance
- L1 Stream HW Prefetcher set to Disable
- SMT Mode set to Disable

**Sysinfo program** /home/cpu2017-1.1.8-amd-aocc300-milan-B1/bin/sysinfo  
**Rev:** r6622 of 2021-04-07 982a61ec0915b55891ef0e16aaca64d  
**running on localhost Fri Apr 17 21:20:58 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 7513 32-Core Processor`
- `cpu cores : 32`
- `siblings : 32`
- `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`

**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: 1`
- `Core(s) per socket: 32`
- `Socket(s): 1`
- `NUMA node(s): 1`
- `Vendor ID: AuthenticAMD`
- `CPU family: 25`
- `Model: 1`
- `Model name: AMD EPYC 7513 32-Core Processor`
- `Stepping: 1`
- `CPU MHz: 2886.888`
- `CPU max MHz: 2600.0000`
- `CPU min MHz: 1500.0000`
- `BogoMIPS: 5190.13`
- `Virtualization: AMD-V`
- `L1d cache: 32K`
- `L1i cache: 32K`

(Continued on next page)
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SPECspeed®2017_fp_base = 144
SPECspeed®2017_fp_peak = 145

Platform Notes (Continued)

L2 cache: 512K
L3 cache: 32768K
NUMA node0 CPU(s): 0-31
Flags: fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov
pat pse36 clflush mmx 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 bpxext perfctr_l1c mwaitx cpb
cat_l3 cdp_l3 invpcid_single hw_pstate ssbd mba ibrs ibpb stibp vmmcall fsgsbase
bm1 avx2 smep bmi2 erms invpcid cqm rdr_a rdseed adx smap clflushopt clwb sha1
xsavorp xsaves xgetbv1 xsaves cqm_llc cqm_occu_l1c cqm_mbb_total cqm_mbb_local
czero irperf xsaveerptr wboinvd arat npt lbrv svm_lock nrip_save tsc_scale
vmcb_clean flushbyasid decodeassist pausefilter pfthreshold v_vmsave_vmload vgif
umip pku ospe victor vaes vpcmulqdq rdpid overflow_recov succor smca

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

From numa info --hardware
  WARNING: a numa info 'node' might or might not correspond to a physical chip.
  available: 1 nodes (0)
  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
  node 0 size: 257606 MB
  node 0 free: 256987 MB
  node distances:
  node 0
    0: 10

From /proc/meminfo
  MemTotal: 263789136 kB
  HugePages_Total: 0
  HugePages_Size: 2048 kB

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

From /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"

(Continued on next page)
Lenovo Global Technology
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CPU2017 License: 9017
Test Sponsor: Lenovo Global Technology
Test Date: Aug-2021
Tested by: Lenovo Global Technology
Hardware Availability: Jun-2021
Software Availability: Mar-2021

Platform Notes (Continued)

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 sanitation
CVE-2017-5715 (Spectre variant 2): Mitigation: Full AMD retpoline, IBFB: 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 17 21:14

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

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

(Continued on next page)
SPEC CPU®2017 Floating Point Speed Result
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Lenovo Global Technology
ThinkSystem SR655
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SPECspeed®2017_fp_base = 144
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Test Date: Aug-2021
Hardware Availability: Jun-2021
Software Availability: Mar-2021

Platform Notes (Continued)

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               | 619.lbm_s(base, peak) 638.imagick_s(base, peak)
                | 644.nab_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++, C, Fortran | 607.cactuBSSN_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
AMD clang version 12.0.0 (CLANG: AOCC_3.0.0-Build#78 2020_12_10) (based on
LLVM Mirror.Version.12.0.0)
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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         | 603.bwaves_s(base, peak) 649.fotonik3d_s(base, peak)
                | 654.roms_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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Test Date: Aug-2021
Hardware Availability: Jun-2021
Software Availability: Mar-2021

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

Fortran, C      | 621.wrf_s(base, peak) 627.cam4_s(base, peak)
                 | 628.pop2_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

Base Compiler Invocation

C benchmarks:
clang

Fortran benchmarks:
flang

Benchmarks using both Fortran and C:
flang clang

Benchmarks using Fortran, C, and C++:
clang++ clang flang

Base Portability Flags

603.bwaves_s: -DSPEC_LP64
607.cactuBSSN_s: -DSPEC_LP64
619.ibm_s: -DSPEC_LP64
621.wrf_s: -DSPEC_CASE_FLAG -Mbyteswapio -DSPEC_LP64
627.cam4_s: -DSPEC_CASE_FLAG -DSPEC_LP64

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Lenovo Global Technology
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Base Portability Flags (Continued)

628.pop2_s: -DSPEC_CASE_FLAG -Mbyteswapio -DSPEC_LP64
638.imagick_s: -DSPEC_LP64
644.nab_s: -DSPEC_LP64
649.fotonik3d_s: -DSPEC_LP64
654.roms_s: -DSPEC_LP64

Base Optimization Flags

C benchmarks:
- m64 -mno-adx -mno-sse4a -Wl,-mllvm -Wl,-region-vectorize
- Wl,-mllvm -Wl,-function-specialize
- Wl,-mllvm -Wl,-align-all-nofallthr-blocks=6
- Wl,-mllvm -Wl,-reduce-array-computations=3 -O3 -march=znver3
  - fvecclib=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-licm-vrp -mllvm -reduce-array-computations=3 -z muldefs
- DSPEC_OPENMP -fopenmp -fopenmp=libomp -lomp -lamdlibm -ljemalloc
- -lflang -lflangrti

Fortran benchmarks:
- m64 -mno-adx -mno-sse4a -Wl,-mllvm -Wl,-enable-X86-prefetching
- Wl,-mllvm -Wl,-enable-licm-vrp -Wl,-mllvm -Wl,-region-vectorize
- Wl,-mllvm -Wl,-function-specialize
- Wl,-mllvm -Wl,-align-all-nofallthr-blocks=6
- Wl,-mllvm -Wl,-reduce-array-computations=3 -Hz,1,0x1 -O3
  - march=znver3 -fvecclib=AMDLIBM -ffast-math -Mrecursive
- mllvm -fuse-tile-inner-loop -funroll-loops
- mllvm -extra-vectorizer-passes -mllvm -lrs-in-nested-loop
- mllvm -enable-licm-vrp -mllvm -reduce-array-computations=3
- mllvm -global-vectorize-slp=true -z muldefs -DSPEC_OPENMP -fopenmp
- -fopenmp=libomp -lomp -lamdlibm -ljemalloc -lflang -lflangrti

Benchmarks using both Fortran and C:
- m64 -mno-adx -mno-sse4a -Wl,-mllvm -Wl,-enable-X86-prefetching
- Wl,-mllvm -Wl,-enable-licm-vrp -Wl,-mllvm -Wl,-region-vectorize
- Wl,-mllvm -Wl,-function-specialize
- Wl,-mllvm -Wl,-align-all-nofallthr-blocks=6
- Wl,-mllvm -Wl,-reduce-array-computations=3 -O3 -march=znver3
  - fvecclib=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

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

Benchmarks using both Fortran and C (continued):
- `-mllvm -enable-licm-vrp -mllvm -reduce-array-computations=3 -Hz,1,0xl`
- `-Mrecursive -mllvm -fuse-tile-inner-loop -funroll-loops`
- `-mllvm -extra-vectorizer-passes -mllvm -lsl-in-nested-loop -z muldefs`
- `-DSPEC_OPENMP -fopenmp -fopenmp=libomp -lomp -lamdlibm -ljemalloc -lflang -lflangrti`

Benchmarks using Fortran, C, and C++:
- `-m64 -mno-adx -mno-sse4a -std=c++98`
- `-Wl,-mllvm -Wl,-x86-use-vzeroupper=false`
- `-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-licm-vrp -mllvm -reduce-array-computations=3`
- `-mllvm -enable-partial-unswitch -mllvm -unroll-threshold=100`
- `-finline-aggressive -mllvm -loop-unswitch-threshold=200000`
- `-mllvm -reroll-loops -mllvm -aggressive-loop-unswitch`
- `-mllvm -extra-vectorizer-passes -mllvm -convert-pow-exp-to-int=false`
- `-Hz,1,0xl -Mrecursive -mllvm -fuse-tile-inner-loop -funroll-loops`
- `-mllvm -lsl-in-nested-loop -z muldefs -DSPEC_OPENMP -fopenmp -fopenmp=libomp -lomp -lamdlibm -ljemalloc -lflang -lflangrti`

# Base Other Flags

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

Fortran benchmarks:
- `-Wno-unused-command-line-argument -Wno-return-type`

Benchmarks using both Fortran and C:
- `-Wno-unused-command-line-argument -Wno-return-type`

Benchmarks using Fortran, C, and C++:
- `-Wno-unused-command-line-argument -Wno-return-type`
Lenovo Global Technology
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SPECspeed®2017_fp_base = 144
SPECspeed®2017_fp_peak = 145

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

Peak Compiler Invocation

C benchmarks:
clang

Fortran benchmarks:
flang

Benchmarks using both Fortran and C:
flang clang

Benchmarks using Fortran, C, and C++:
clang++ clang flang

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:
619.lbm_s: -m64 -mno-adx -mno-sse4a
-W1, -mllvm -W1, -function-specialize
-W1, -mllvm -W1, -align-all-nofallthru-blocks=6
-W1, -mllvm -W1, -reduce-array-computations=3 -Ofast
-march=znver3 -fveclib=AMDLIBM -ffast-math -flio
-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
-mllvm -function-specialize -mllvm -enable-lcm-vrp
-mllvm -reduce-array-computations=3 -DSPEC_OPENMP -fopenmp
-fopenmp=libomp -lomp -landllibm -ljemalloc -lflang

638.imagick_s: basepeak = yes

644.nab_s: basepeak = yes

Fortran benchmarks:
603.bwaves_s: basepeak = yes

(Continued on next page)
# Lenovo Global Technology

**ThinkSystem SR655**  
2.60 GHz, AMD EPYC 7513

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<tr>
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**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

## Peak Optimization Flags (Continued)

649.fotonik3d_s: basepeak = yes

654.roms_s: -m64 -mno-adx -mno-sse4a  
-Wl,-mllvm -Wl,-enable-x86-prefetching  
-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 -Mrecursive  
-mllvm -reduce-array-computations=3  
-mllvm -global-vectorize-slp=true -mllvm -enable-licm-vrp  
-DSPEC_OPENMP -fopenmp -fopenmp=libomp -lomp -lamdlibm  
-ljemalloc -lflang

### Benchmarks using both Fortran and C:

- 621.wrf_s: basepeak = yes
- 627.cam4_s: basepeak = yes
- 628.pop2_s: basepeak = yes

### Benchmarks using Fortran, C, and C++:

- 607.cactuBSSN_s: basepeak = yes

## Peak Other Flags

### C benchmarks:

- W-unused-command-line-argument -Wno-return-type

### Fortran benchmarks:

- W-unused-command-line-argument -Wno-return-type

### Benchmarks using both Fortran and C:

- W-unused-command-line-argument -Wno-return-type

### Benchmarks using Fortran, C, and C++:

- W-unused-command-line-argument -Wno-return-type

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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  
## Lenovo Global Technology

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


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