Lenovo Global Technology
ThinkSystem SR635
3.50 GHz, AMD EPYC 73F3

SPECspeed®2017_fp_base = 118
SPECspeed®2017_fp_peak = 127

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

Threads

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>16 (Threads)</th>
<th>SPECspeed®2017_fp_base</th>
<th>SPECspeed®2017_fp_peak</th>
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<tr>
<td>603.bwaves_s</td>
<td>16</td>
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<tr>
<td>607.cactuBSSN_s</td>
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<td>57.3</td>
<td>166</td>
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<td>619.ibm_s</td>
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<td>67.9</td>
<td>152</td>
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<tr>
<td>621.wrf_s</td>
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<td>73.1</td>
<td>152</td>
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<tr>
<td>627.cam4_s</td>
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<td>84.6</td>
<td>197</td>
</tr>
<tr>
<td>628.pop2_s</td>
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<td>197</td>
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<tr>
<td>638.imagick_s</td>
<td>32</td>
<td>109</td>
<td>197</td>
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<tr>
<td>644.nab_s</td>
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<td>70.9</td>
<td>146</td>
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<tr>
<td>649.fotonik3d_s</td>
<td>16</td>
<td>132</td>
<td>197</td>
</tr>
<tr>
<td>654.roms_s</td>
<td>16</td>
<td>146</td>
<td>197</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
Lenovo Global Technology  
ThinkSystem SR635  
3.50 GHz, AMD EPYC 73F3

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

---

**Results Table**

<table>
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<tr>
<th>Benchmark</th>
<th>Threads</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Threads</th>
<th>Seconds</th>
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<th>Threads</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Threads</th>
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<th>Ratio</th>
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<td>16</td>
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<td>120</td>
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</tbody>
</table>

**SPECspeed®2017_fp_base = 118**  
**SPECspeed®2017_fp_peak = 127**

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 numaclt 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)
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3.50 GHz, AMD EPYC 73F3

SPECspeed®2017_fp_base = 118
SPECspeed®2017_fp_peak = 127

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_l
  i/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 621.wrf_s peak run:
GOMP_CPU_AFFINITY = "0-15"

Environment variables set by runcpu during the 627.cam4_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 638.imagick_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 644.nab_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 = "0-15"
SPEC CPU®2017 Floating Point Speed Result

Lenovo Global Technology
ThinkSystem SR635
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SPECspeed®2017_fp_base = 118
SPECspeed®2017_fp_peak = 127

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

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

Platform Notes

BIOS configuration:
Choose Operating Mode set to Maximum Performance

Sysinfo program /home/cpu2017-1.1.8-amd-aocc300-milan-B1/bin/sysinfo
Rev: r6622 of 2021-04-07 982a61ec0915b55891ef0e16aca60d6
running on localhost Fri Jun 18 18:18:23 2021

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

(Continued on next page)
Platform Notes (Continued)

NUMA node(s): 1
Vendor ID: AuthenticAMD
CPU family: 25
Model: 1
Model name: AMD EPYC 73F3 16-Core Processor
Stepping: 1
CPU MHz: 3932.991
CPU max MHz: 3500.0000
CPU min MHz: 1500.0000
BogoMIPS: 6986.39
Virtualization: AMD-V
L1d cache: 32K
L1i cache: 32K
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 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 xsave 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_llc mwaitx cpb cat_l3 cdp_l3 invpcid_single hw_pstate ssbd mba ibrs ibpb stibp vmmcall fsgsbase bmi1 avx2 smep bmi2 erms invpcid cmq rdt_a rdseed adx smap clflushopt clwb sha_ni xsaveopt xsave xsaveopt xsavec xsaveopt xsaveopt xsaveopt xsaveopt xsaveopt xsaveopt xsaveopt xsaveopt xsaveopt xsaveopt xsaveopt xsaveopt xsaveopt xsaveopt xsaveopt xsaveopt xsaveopt
From numactl --hardware
WARNING: a numactl '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: 257604 MB
   node 0 free: 257025 MB
   node distances:
      node 0
      0: 10

From /proc/meminfo
   MemTotal: 263787020 kB
   HugePages_Total: 0
   Hugepagesize: 2048 kB

(Continued on next page)
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**Platform Notes (Continued)**

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

From `/etc/*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, IBFP: conditional, IBRS_FW, STIBP: always-on, RSB filling

```
run-level 3 Jun 18 18:12
SPEC is set to: /home/cpu2017-1.1.8-amd-aocc300-milan-B1
```

```
Filesystem  Type  Size  Used Avail Use% Mounted on
/dev/sda3  xfs   892G   62G  830G   7%  /
```

From `/sys/devices/virtual/dmi/id`

<table>
<thead>
<tr>
<th>Vendor</th>
<th>Lenovo</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product</td>
<td>ThinkSystem SR635 -[7Y98XXXX]-</td>
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<tr>
<td>Product Family</td>
<td>ThinkSystem</td>
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SPECspeed®2017_fp_base = 118
SPECspeed®2017_fp_peak = 127

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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
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
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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)

(Continued on next page)
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### Compiler Version Notes (Continued)

<table>
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<tr>
<th>Language</th>
<th>Benchmark Name</th>
<th>Base (base, peak)</th>
<th>Peak (base, peak)</th>
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<tbody>
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<td>Fortran</td>
<td>603.bwaves_s</td>
<td>649.fotonik3d_s</td>
<td>654.roms_s</td>
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<tr>
<td></td>
<td></td>
<td>(base, peak)</td>
<td>(base, peak)</td>
</tr>
</tbody>
</table>

AMD clang version 12.0.0 (CLANG: AOCC\_3.0.0-Build\#78 2020\_12\_10) (based on LLVM Mirror.Version.12.0.0)

### 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
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Base Portability Flags

603.bwaves_s: -DSPEC_LP64
607.cactuBSSN_s: -DSPEC_LP64
619.lbm_s: -DSPEC_LP64
621.wrf_s: -DSPEC_CASE_FLAG -Mbyteswapio -DSPEC_LP64
627.cam4_s: -DSPEC_CASE_FLAG -DSPEC_LP64
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-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 -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-nofallthru-blocks=6
- Wl,-mllvm -Wl,-reduce-array-computations=3 -Hz,1,0x1 -O3
- -march=znver3 -fveclib=AMDLIBM -ffast-math -Mrecursive
- -mllvm -fuse-tile-inner-loop -funroll-loops
- -mllvm -extra-vectorizer-passes -mllvm -lsr-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-nofallthru-blocks=6

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Lenovo Global Technology

ThinkSystem SR635
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Software Availability: Mar-2021

SPEC®2017_fp_base = 118
SPEC®2017_fp_peak = 127

---

**Base Optimization Flags (Continued)**

Benchmarks using both Fortran and C (continued):
- `-Wl,-mlllvm -Wl,-reduce-array-computations=3 -O3 -march=znver3`
- `-fveclib=AMDLIBM -ffast-math -flto -fstruct-layout=5`
- `-mlllvm -unroll-threshold=50 -mlllvm -inline-threshold=1000`
- `-fremap-arrays -mlllvm -function-specialize -flv-function-specialization`
- `-mlllvm -enable-gvn-hoist -mlllvm -global-vectorize-slp=true`
- `-mlllvm -enable-licm-vrp -mlllvm -reduce-array-computations=3 -Hz,1,0x1`
- `-Mrecursive -mlllvm -fuse-tile-inner-loop -funroll-loops`
- `-mlllvm -extra-vectorizer-passes -mlllvm -lsr-in-nested-loop -z muldefs`
- `-DSPEC_OPENMMP -fopenmp -fopenmp=libomp -lomp -lamdlibm -ljemalloc -lflang -lflangrti`

Benchmarks using Fortran, C, and C++:
- `-m64 -mno-adx -mno-sse4a -std=c++98`
- `-Wl,-mlllvm -Wl,-x86-use-vzeroupper=false`
- `-Wl,-mlllvm -Wl,-region-vectorize -Wl,-mlllvm -Wl,-function-specialize`
- `-Wl,-mlllvm -Wl,-align-all-nofallthru-blocks=6`
- `-Wl,-mlllvm -Wl,-reduce-array-computations=3 -O3 -march=znver3`
- `-fveclib=AMDLIBM -ffast-math -flto -fstruct-layout=5`
- `-mlllvm -unroll-threshold=50 -mlllvm -inline-threshold=1000`
- `-fremap-arrays -mlllvm -function-specialize -flv-function-specialization`
- `-mlllvm -enable-gvn-hoist -mlllvm -global-vectorize-slp=true`
- `-mlllvm -enable-licm-vrp -mlllvm -reduce-array-computations=3`
- `-mlllvm -enable-partial-unswitch -mlllvm -unroll-threshold=100`
- `-finline-aggressive -mlllvm -loop-unswitch-threshold=200000`
- `-mlllvm -reroll-loops -mlllvm -aggressive-loop-unswitch`
- `-mlllvm -extra-vectorizer-passes -mlllvm -convert-pow-exp-to-int=false`
- `-Hz,1,0x1 -Mrecursive -mlllvm -fuse-tile-inner-loop -funroll-loops`
- `-mlllvm -lsr-in-nested-loop -z muldefs -DSPEC_OPENMMP -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`
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
-arch=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
-mllvm -function-specialize -mllvm -enable-licm-vrp
-mllvm -reduce-array-computations=3 -DSPEC_OPENMP -fopenmp
-fopenmp=libomp -lomp -lamdlibm -ljemalloc -flang

638.imagick_s: Same as 619.lbm_s

644.nab_s: -m64 -mno-adx -mno-sse4a -W1, -mllvm -W1, -region-vectorize
-W1, -mllvm -W1, -function-specialize -Ofast -arch=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
-mllvm -function-specialize -mllvm -enable-licm-vrp

(Continued on next page)
Lenovo Global Technology
ThinkSystem SR635
3.50 GHz, AMD EPYC 73F3

SPECspeed®2017_fp_base = 118
SPECspeed®2017_fp_peak = 127

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 Optimization Flags (Continued)

644.nab_s (continued):
-mllvm -reduce-array-computations=3 -DSPEC_OPENMP -fopenmp
-fopenmp=libomp -lomp -lamdlibm -ljemalloc -lflang

Fortran benchmarks:

603.bwaves_s: basepeak = yes
649.fotonik3d_s: basepeak = yes
654.roms_s: -m64 -mno-adx -mno-sse4a
-W1,-mlvm -W1,-enable-X86-prefetching
-W1,-mlvm -W1,-enable-licm-vrp
-W1,-mlvm -W1,-function-specialize
-W1,-mlvm -W1,-align-all-nofallback-blocks=6
-W1,-mlvm -W1,-reduce-array-computations=3 -Ofast
-march=znver3 -fveclib=AMDLIBM -ffast-math -Mrecursive
-mlvm -reduce-array-computations=3
-mlvm -global-vectorize-slp=true -mlvm -enable-licm-vrp
-DSPEC_OPENMP -fopenmp -fopenmp=libomp -lomp -lamdlibm
-ljemalloc -lflang

Benchmarks using both Fortran and C:

621.wrf_s: -m64 -mno-adx -mno-sse4a
-W1,-mlvm -W1,-enable-X86-prefetching
-W1,-mlvm -W1,-enable-licm-vrp
-W1,-mlvm -W1,-function-specialize
-W1,-mlvm -W1,-align-all-nofallback-blocks=6
-W1,-mlvm -W1,-reduce-array-computations=3 -Ofast
-march=znver3 -fveclib=AMDLIBM -ffast-math -flto
-fstruct-layout=5 -mlvm -unroll-threshold=50
-fremap-arrays -flv-function-specialization
-mlvm -inline-threshold=1000 -mlvm -enable-gvn-hoist
-mlvm -global-vectorize-slp=true
-mlvm -function-specialize -mlvm -enable-licm-vrp
-mlvm -reduce-array-computations=3 -Hz,1,0x1
-MLrecursive -mlvm -fuse-tile-inner-loop -funroll-loops
-mlvm -extra-vectorizer-passes -mlvm -lsr-in-nested-loop
-DSPEC_OPENMP -fopenmp -fopenmp=libomp -lomp -lamdlibm
-ljemalloc -lflang

627.cam4_s: -m64 -mno-adx -mno-sse4a
-W1,-mlvm -W1,-enable-X86-prefetching
-W1,-mlvm -W1,-enable-licm-vrp
-W1,-mlvm -W1,-function-specialize

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Lenovo Global Technology

SPECcpu2017 Floating Point Speed Result

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Lenovo Global Technology
ThinkSystem SR635
3.50 GHz, AMD EPYC 73F3

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Peak Optimization Flags (Continued)

627.cam4_s (continued):
- 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
- mllvm -function-specialize -mllvm -enable-licm-vrp
- mllvm -reduce-array-computations=3 -Mrecursive
- DSPEC_OPENMP -fopenmp -fopenmp=libomp -lomp -lamdlibm
- ljemalloc -liflagn

628.pop2_s: basepeak = yes

Benchmarks using Fortran, C, and C++:

607.cactuBSSN_s: basepeak = yes

Peak 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

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
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Originally published on 2021-07-06.