# Lenovo Global Technology

**Lenovo Global Technology**

**ThinkSystem SR645**

**2.30 GHz, AMD EPYC 7643**

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**SPECspeed®2017_fp_base = 235**

**SPECspeed®2017_fp_peak = 241**

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### Hardware

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</table>

**SPECspeed®2017_fp_base (235)**

**SPECspeed®2017_fp_peak (241)**

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### 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 D8E115E 2.01 released Mar-2021
- **File System:** xfs
- **System State:** Run level 3 (multi-user)
- **Base Pointers:** 64-bit
- **Peak Pointers:** 64-bit
- **Power Management:** BIOS set to prefer performance at the cost of additional power usage

---

**CPU Name:** AMD EPYC 7643

**Max MHz:** 3600

**Nominal:** 2300

**Enabled:** 96 cores, 2 chips

**Orderable:** 1.2 chips

**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 / 6 cores

**Other:** None

**Memory:** 512 GB (16 x 32 GB 2Rx4 PC4-3200AA-R)

**Storage:** 1 x 960 GB SATA SSD

**Other:** None
SPEC CPU®2017 Floating Point Speed Result

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Lenovo Global Technology
ThinkSystem SR645
2.30 GHz, AMD EPYC 7643

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

SPECspeed®2017_fp_base = 235
SPECspeed®2017_fp_peak = 241

Results Table

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</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

(Continued on next page)
Lenovo Global Technology  
ThinkSystem SR645  
2.30 GHz, AMD EPYC 7643

| SPECspeed®2017_fp_base = 235 |
| SPECspeed®2017_fp_peak = 241 |

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

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 = "0-95"
LD_LIBRARY_PATH = 
"/home/cpu2017-1.1.5-amd-aocc300-milan-B1/amd_speed_aocc300_milan_B_lib/64;/home/cpu2017-1.1.5-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 = "96"

Environment variables set by runcpu during the 654.roms_s peak run:
GOMP_CPU_AFFINITY = "0-95"

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:
Operating Mode set to Maximum Performance and then set it to Custom Mode
4-Link xGMI Max Speed set to 16Gbps
SOC P-States set to P0
Lenovo Global Technology

ThinkSystem SR645
2.30 GHz, AMD EPYC 7643

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

Platform Notes (Continued)

SMT Mode set to Disable
DLWM Support set to Disabled

Sysinfo program /home/cpu2017-1.1.5-amd-aocc300-milan-B1/bin/sysinfo
Rev: r6538 of 2020-09-24 e8664e66d2d7080afeaa89d4b38e2f1c
running on localhost Fri Apr 16 10:33:16 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 7643 48-Core Processor
  2 "physical id"s (chips)
  96 "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 : 48
  siblings : 48
  physical 0: cores 0 1 2 3 4 5 8 9 10 11 12 13 16 17 18 19 20 21 24 25 26 27 28 29
  32 33 34 35 36 37 40 41 42 43 44 45 48 49 50 51 52 53 56 57 58 59 60 61
  physical 1: cores 0 1 2 3 4 5 8 9 10 11 12 13 16 17 18 19 20 21 24 25 26 27 28 29
  32 33 34 35 36 37 40 41 42 43 44 45 48 49 50 51 52 53 56 57 58 59 60 61

From lscpu:
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): 96
On-line CPU(s) list: 0-95
Thread(s) per core: 1
Core(s) per socket: 48
Socket(s): 2
NUMA node(s): 2
Vendor ID: AuthenticAMD
CPU family: 25
Model: 1
Model name: AMD EPYC 7643 48-Core Processor
Stepping: 1
CPU MHz: 1822.475
CPU max MHz: 2300.0000
CPU min MHz: 1500.0000
BogoMIPS: 4591.33
Virtualization: AMD-V
L1d cache: 32K
L1i cache: 32K

(Continued on next page)
Platform Notes (Continued)

L2 cache: 512K
L3 cache: 32768K
NUMA node0 CPU(s): 0-47
NUMA node1 CPU(s): 48-95
Flags: fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov
pat pse36 clflush mmx fxsr 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
lahlf_m cmp_legacy svm extapic cr8_legacy abm sse4a misalignsse 3nowprefetch osvw
ibs skinit wdt tce topoext perfctr_core perfctr_nb bpext perfctr_llc mwaitx cpb
cat_13 cdp_13 invpcid_single hw_pstate ssbd mba ibrs iypb stibp vmcall fsqbase
bm1 avx2 smep bmm2 erms invpcid clflushopt clwb sha_ni xsaveopt xsavec xgetbv1 xsaves
cqm_llc cqm_occu_11c cqm_mb_total cqm_mb_local clzero irperf xsavekrpr wboinvd arat
npt lbrv svm_lock nrip_save tsc_scale vmcb_clean flushbyasid decodeassists pausenfilter
pfthreshold v_vmsave_vmload vgif umip pku ospe vaes vpclmulqdq rdpid overflow_recoev
sucor 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 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47
  node 0 size: 257800 MB
  node 0 free: 256953 MB
  node 1 cpus: 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 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 1 size: 258031 MB
  node 1 free: 257575 MB
  node distances:
  node 0 1
  0: 10 32
  1: 32 10

From /proc/meminfo
  MemTotal: 528211328 kB
  HugePages_Total: 0
  Hugepagesize: 2048 kB

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

From /etc/*release* /etc/*version*
  os-release:
    NAME="SLES"
### Lenovo Global Technology

**ThinkSystem SR645**

**CPU Model:** 2.30 GHz, AMD EPYC 7643

<table>
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<tr>
<th>Specification</th>
<th>Value</th>
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<tr>
<td>SPECspeed(^{2017})(_{\text{fp_peak}})</td>
<td>241</td>
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### Platform Notes (Continued)

```plaintext
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: 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 16 09:19

**SPEC is set to:** /home/cpu2017-1.1.5-amd-aocc300-milan-B1

---

### 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 SMI BIOS" standard.

**Memory:**

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(Continued on next page)
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SPECspeed® 2017_fp_base = 235
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CPU2017 License: 9017
Test Sponsor: Lenovo Global Technology
Test Date: Apr-2021
Hardware Availability: Apr-2021
Tested by: Lenovo Global Technology
Software Availability: Mar-2021

Platform Notes (Continued)

16x Samsung M393A4K40DB3-CWE 32 GB 2 rank 3200
16x Unknown Unknown

BIOS:
BIOS Vendor: Lenovo
BIOS Version: D8E115E-2.01
BIOS Date: 03/04/2021
BIOS Revision: 2.1
Firmware Revision: 3.1

(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)
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)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc-compiler-3.0.0/bin

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Lenovo Global Technology
ThinkSystem SR645
2.30 GHz, AMD EPYC 7643

SPECspeed®2017_fp_base = 235
SPECspeed®2017_fp_peak = 241

Compiler Version Notes (Continued)

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 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

(Continued on next page)
Lenovo Global Technology
ThinkSystem SR645
2.30 GHz, AMD EPYC 7643

SPECSPEED®2017_fp_base = 235
SPECSPEED®2017_fp_peak = 241

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

Base Portability Flags (Continued)

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 -ldl -ljemalloc
-llang -llangrti

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 -Hs,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 -ldl -ljemalloc -llang -llangrti

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
-Wl, -mllvm -Wl, -reduce-array-computations=3 -O3 -march=znver3

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Lenovo Global Technology
ThinkSystem SR645
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CPU2017 License: 9017
Test Sponsor: Lenovo Global Technology
Hardware Availability: Apr-2021
Tested by: Lenovo Global Technology
Software Availability: Mar-2021

Base Optimization Flags (Continued)

Benchmarks using both Fortran and C (continued):
- fvecclib=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_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
- -fvecclib=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-unschedule -mlllvm -unroll-threshold=100
- -finline-aggressive -mlllvm -loop-unschedule-threshold=200000
- -mlllvm -reroll-loops -mlllvm -aggressive-loop-unschedule
- -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_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

ThinkSystem SR645
2.30 GHz, AMD EPYC 7643

| SPECspeed®2017_fp_base = 235 |
| SPECspeed®2017_fp_peak = 241 |

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

Test Date: Apr-2021
Hardware Availability: Apr-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: basepeak = yes
638.imagick_s: basepeak = yes
644.nab_s: basepeak = yes

Fortran benchmarks:
603.bwaves_s: basepeak = yes
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 -mglobal-vectorize-slp=true -mllvm -enable-licm-VRP
-DSPEC_OPENMP -fopenmp -fopenmp=libomp -lomp -lamlibm

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# Lenovo Global Technology

**ThinkSystem SR645**  
2.30 GHz, AMD EPYC 7643

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**SPEC CPU 2017 Floating Point Speed Result**  
**Software Availability:** Mar-2021

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**Test Date:** Apr-2021

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## Peak Optimization Flags (Continued)

- 654.roms_s (continued):
  - -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:**

- -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:


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


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**SPEC CPU and SPECspeed v1.1.5 on 2021-04-15 22:33:16-0400.**

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