## Lenovo Global Technology

ThinkSystem SR665  
2.35 GHz, AMD EPYC 7452

### SPECspeed®2017_fp_base = 164

### SPECspeed®2017_fp_peak = 170

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### CPU2017 License: 9017  
Test Sponsor: Lenovo Global Technology  
Tested by: Lenovo Global Technology  
Test Date: Jun-2020  
Hardware Availability: Jun-2020  
Software Availability: Dec-2019

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<th>Threads</th>
<th>SPECspeed®2017_fp_base (164)</th>
<th>SPECspeed®2017_fp_peak (170)</th>
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<td>627.cam4_s</td>
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<td>628.pop2_s</td>
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<td>638.imagick_s</td>
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<td>644.nab_s</td>
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<tr>
<td>649.fotonik3d_s</td>
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</tr>
<tr>
<td>654.roms_s</td>
<td>64</td>
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</tr>
</tbody>
</table>

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### Hardware

**CPU Name:** AMD EPYC 7452  
**Max MHz:** 3350  
**Nominal:** 2350  
**Enabled:** 64 cores, 2 chips, 2 threads/core  
**Orderable:** 1.2 chips  
**Cache L1:** 32 KB I + 32 KB D on chip per core  
**Cache L2:** 512 KB I+D on chip per core  
**Cache L3:** 128 MB I+D on chip per chip, 16 MB shared / 4 cores  
**Other:** None  
**Memory:** 1 TB (32 x 32 GB 2Rx8 PC4-3200AA-R)  
**Storage:** 1 x 960 GB SATA SSD  
**Other:** None

### Software

**OS:** SUSE Linux Enterprise Server 12 SP5 (x86_64)  
**Kernel:** 4.12.14-120-default  
**Compiler:** C/C++/Fortran: Version 2.0.0 of AOCC  
**Parallel:** Yes  
**Firmware:** Lenovo BIOS Version D8E105P 1.00 released May-2020  
**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 set to prefer performance at the cost of additional power usage
**Lenovo Global Technology**

ThinkSystem SR665 2.35 GHz, AMD EPYC 7452

**SPECspeed®2017_fp_base = 164**

**SPECspeed®2017_fp_peak = 170**

**Results Table**

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Threads</th>
<th>Seconds</th>
<th>Ratio</th>
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</tr>
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</table>

**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.
'nnumactl' 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>

Set dirty_ratio=8 to limit dirty cache to 8% of memory
Set swappiness=1 to swap only if necessary
Set zone_reclaim_mode=1 to free local node memory and avoid remote memory
sync then drop_caches=3 to reset caches before invoking runcpu

dirty_ratio, swappiness, zone_reclaim_mode and drop_caches were all set using privileged echo (e.g. echo 1 > /proc/sys/vm/swappiness).

Transparent huge pages set to 'always' for this run (OS default)
Lenovo Global Technology
ThinkSystem SR665
2.35 GHz, AMD EPYC 7452

SPECspeed®2017_fp_base = 164
SPECspeed®2017_fp_peak = 170

Environment Variables Notes

Environment variables set by runcpu before the start of the run:
GOMP_CPU_AFFINITY = "0-127"
LD_LIBRARY_PATH = 
"/home/cpu2017-1.1.0-amd-rome-aocc200-C3/amd_speed_aocc200_rome_C_lib/64
;/home/cpu2017-1.1.0-amd-rome-aocc200-C3/amd_speed_aocc200_rome_C_lib/32"
MALLOC_CONF = "retain:true"
OMP_DYNAMIC = "false"
OMP_SCHEDULE = "static"
OMP_STACKSIZE = "128M"
OMP_THREAD_LIMIT = "128"

Environment variables set by runcpu during the 607.cactuBSSN_s peak run:
GOMP_CPU_AFFINITY = "0-63"

Environment variables set by runcpu during the 619.lbm_s peak run:
GOMP_CPU_AFFINITY = "0 64 1 65 2 66 3 67 4 68 5 69 6 70 7 71 8 72 9 73 10 74
11 75 12 76 13 77 14 78 15 79 16 80 17 81 18 82 19 83 20 84 21 85 22 86
23 87 24 88 25 89 26 90 27 91 28 92 29 93 30 94 31 95 32 96 33 97 34 98
35 99 36 100 37 101 38 102 39 103 40 104 41 105 42 106 43 107 44 108 45
109 46 110 47 111 48 112 49 113 50 114 51 115 52 116 53 117 54 118 55
119 56 120 57 121 58 122 59 123 60 124 61 125 62 126 63 127"

Environment variables set by runcpu during the 621.wrf_s peak run:
GOMP_CPU_AFFINITY = "0-63"

Environment variables set by runcpu during the 638.imagick_s peak run:
GOMP_CPU_AFFINITY = "0-63"

Environment variables set by runcpu during the 644.nab_s peak run:
GOMP_CPU_AFFINITY = "0 64 1 65 2 66 3 67 4 68 5 69 6 70 7 71 8 72 9 73 10 74
11 75 12 76 13 77 14 78 15 79 16 80 17 81 18 82 19 83 20 84 21 85 22 86
23 87 24 88 25 89 26 90 27 91 28 92 29 93 30 94 31 95 32 96 33 97 34 98
35 99 36 100 37 101 38 102 39 103 40 104 41 105 42 106 43 107 44 108 45
109 46 110 47 111 48 112 49 113 50 114 51 115 52 116 53 117 54 118 55
119 56 120 57 121 58 122 59 123 60 124 61 125 62 126 63 127"

Environment variables set by runcpu during the 654.roms_s peak run:
GOMP_CPU_AFFINITY = "0-63"

General Notes

Binaries were compiled on a system with 2x AMD EPYC 7601 CPU + 512GB Memory using Fedora 26
NA: The test sponsor attests, as of date of publication, that CVE-2017-5754 (Meltdown)
(Continued on next page)
General Notes (Continued)

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 v9.1.0 in Ubuntu 19.04 with -O3 -znver2 -flto  
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 settings:  
Choose Operating Mode set to Maximum Performance and then set it to Custom Mode  
Global C-state Control set to Disable  
NUMA nodes per socket set to NPS2  
SOC P-States set to P0  

Sysinfo program /home/cpu2017-1.1.0-amd-rome-aocc200-C3/bin/sysinfo  
Rev: r6365 of 2019-08-21 295195f88a3d7edbe6e46a485a0011  
running on linux-401h Fri Jun 12 18:15:22 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 7452 32-Core Processor  
  2 "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 : 32  
  siblings : 64  
  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  
  physical 1: 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:  
Architecture: x86_64  
CPU op-mode(s): 32-bit, 64-bit  
Byte Order: Little Endian  
Address sizes: 43 bits physical, 48 bits virtual  
CPU(s): 128  
On-line CPU(s) list: 0-127

(Continued on next page)
## Lenovo Global Technology

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<table>
<thead>
<tr>
<th>SPEC®2017_fp_base = 164</th>
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<tr>
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### CPU2017 License: 9017  
Test Sponsor: Lenovo Global Technology  
Tested by: Lenovo Global Technology

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Tested by: Lenovo Global Technology |
|-------------------------------------|

### Platform Notes (Continued)

- **Thread(s) per core:** 2
- **Core(s) per socket:** 32
- **Socket(s):** 2
- **NUMA node(s):** 4
- **Vendor ID:** AuthenticAMD
- **CPU family:** 23
- **Model:** 49
- **Model name:** AMD EPYC 7452 32-Core Processor
- **Stepping:** 0
- **CPU MHz:** 2350.000
- **CPU max MHz:** 2350.0000
- **CPU min MHz:** 1500.0000
- **BogoMIPS:** 4690.92
- **Virtualization:** AMD-V
- **L1d cache:** 32K
- **L1i cache:** 32K
- **L2 cache:** 512K
- **L3 cache:** 16384K
- **NUMA node0 CPU(s):** 0-15, 64-79
- **NUMA node1 CPU(s):** 16-31, 80-95
- **NUMA node2 CPU(s):** 32-47, 96-111
- **NUMA node3 CPU(s):** 48-63, 112-127
- **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 mmxt ext fxsr_opt pdpe1gb rdtsscp lm constant_tsc rep_good nopl nonstop_tsc cpuid ext_apicid aperfmpref pni pclmulqdq monitor ssse3 fma cx16 sse4_1 sse4_2 movbe popcnt aes avx f16c rdrand lahf_lm cmp_legacy svm extapic cr8_legacy abm sse4a misalignnesse 3dnwprefetch osvw ibriskwine dtc topoext perfctr_core perfctr_nb bpbext perfctr_l2 mwaitx cpb cat_l3 cdp_l3 hw_poststate sme ssbd sev ibrs ibpb stibp vmmcall fsfgsbase bm1 avx2 smep bmi2 cqm rdt_a rdseed adx smap clflushopt clwb sha_ni xsaveopt xsavec xgetbv1 xsavees cqm_llc cqm_occup_llc cqm_mbm_total cqm_mbm_local clzero irperf xsaveerptr wbnoinvd arat npt lbrv svm_lock nrip_save tsc_scale vmcb_clean flushbysid decodeassists pausefilter pfthreshold avic v_vmsave_vmload vgif umip rdpid 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: 4 nodes (0-3)  
node 0 cpus: 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 26 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79  
node 0 size: 257818 MB  
node 0 free: 257473 MB  
node 1 cpus: 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95

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

**Lenovo Global Technology**  
ThinkSystem SR665  
2.35 GHz, AMD EPYC 7452

<table>
<thead>
<tr>
<th>CPU2017 License: 9017</th>
<th>Test Date: Jun-2020</th>
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<tbody>
<tr>
<td>Lenovo Global Technology</td>
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</table>

**SPECspeed®2017_fp_base = 164**  
**SPECspeed®2017_fp_peak = 170**

**Platform Notes (Continued)**

```
node 1 size: 258028 MB  
node 1 free: 257764 MB  
node 2 cpus: 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111  
node 2 size: 258040 MB  
node 2 free: 257732 MB  
node 3 cpus: 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127  
node 3 size: 258039 MB  
node 3 free: 257583 MB  
node distances:  
node 0 1 2 3  
  0: 10 12 32 32  
  1: 12 10 32 32  
  2: 32 32 10 12  
  3: 32 32 12 10
```

From /proc/meminfo  
MemTotal: 1056693752 kB  
HugePages_Total: 0  
Hugepagesize: 2048 kB

From /etc/*release* /etc/*version*  
SuSE-release:  
SUSE Linux Enterprise Server 12 (x86_64)  
VERSION = 12  
PATCHLEVEL = 5  
# This file is deprecated and will be removed in a future service pack or release.  
# Please check /etc/os-release for details about this release.  
os-release:  
NAME="SLES"  
VERSION="12-SP5"  
VERSION_ID="12.5"  
PRETTY_NAME="SUSE Linux Enterprise Server 12 SP5"  
ID="sles"  
ANSI_COLOR="0;32"  
CPE_NAME="cpe:/o:suse:sles:12:sp5"

uname -a:  
Linux linux-4l0h 4.12.14-120-default #1 SMP Thu Nov 7 16:39:09 UTC 2019 (fd9dc36)  
x86_64 x86_64 x86_64 GNU/Linux

Kernel self-reported vulnerability status:

- **itlb_multihit:** Not affected
- **CVE-2018-3620 (L1 Terminal Fault):** Not affected
- **Microarchitectural Data Sampling:** Not affected

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

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

**Platform Notes (Continued)**

- **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, IBBP: conditional, IBRS_FW, STIBP: conditional, RSB filling
- **tsx_async_abort:** Not affected

run-level 3 Jun 12 18:09

SPEC is set to: /home/cpu2017-1.1.0-amd-rome-aocc200-C3
From /sys/devices/virtual/dmi/id
BIOS: Lenovo D8E105P-1.00 05/08/2020
Vendor: Lenovo
Product: ThinkSystem SR665 MB
Product Family: ThinkSystem
Serial: 1234567890

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 SMBIOS" standard.

Memory:
32x Samsung M393A4G43AB3-CWE 32 kB 2 rank 3200

This system support 16 DIMMs per processor, total 32 DIMMs.
32 DIMM slots installed with 32 GB DIMM for this run.

**Compiler Version Notes**

==============================================================================
<table>
<thead>
<tr>
<th>Compiler Version</th>
<th>Notes</th>
</tr>
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<td>619.lbm_s(base, peak) 638.imagick_s(base, peak) 644.nab_s(base, peak)</td>
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<tr>
<td>AOCC.LLVM.2.0.0.B191.2019_07_19 clang version 8.0.0 (CLANG: Jenkins AOCC_2_0_0-Build#191) (based on LLVM AOCC.LLVM.2.0.0.B191.2019_07_19) Target: x86_64-unknown-linux-gnu Thread model: posix InstalledDir: /sppo/dev/compilers/aocc-compiler-2.0.0/bin</td>
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(Continued on next page)
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Compiler Version Notes (Continued)

C++, C, Fortran | 607.cactuBSSN_s(base, peak)

AOCC.LLVM.2.0.0.B191.2019_07_19 clang version 8.0.0 (CLANG: Jenkins
AOCC_2_0_0-Build#191) (based on LLVM AOCC.LLVM.2.0.0.B191.2019_07_19)
Target: x86_64-unknown-linux-gnu
Thread model: posix
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Fortran | 603.bwaves_s(base, peak) 649.fotonik3d_s(base, peak) 654.roms_s(base, peak)

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Fortran, C | 621.wrf_s(base, peak) 627.cam4_s(base, peak) 628.pop2_s(base, peak)

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Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /sppo/dev/compilers/aocc-compiler-2.0.0/bin

---
# Lenovo Global Technology

ThinkSystem SR665 2.35 GHz, AMD EPYC 7452

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<tr>
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## 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.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:
- `-flto -Wl,-mllvm -Wl,-function-specialize`
- `-Wl,-mllvm -Wl,-region-vectorize -Wl,-mllvm -Wl,-vector-library=LIBMVEC`
- `-Wl,-mllvm -Wl,-reduce-array-computations=3 -O3 -ffast-math`
- `-march=znver2 -fstruct-layout=3 -mllvm -unroll-threshold=50`
- `-fremap-arrays -mllvm -function-specialize -mllvm -enable-gvn-hoist`
- `-mllvm -reduce-array-computations=3 -mllvm -global-vectorize-slp`
- `-mllvm -vector-library=LIBMVEC -mllvm -inline-threshold=1000`
- `-flv-function-specialization -z muldefs -DSPEC_OPENMP -fopenmp`
- `-fopenmp=libomp -lomp -lpthread -ldl -lmvec -lamdlibm -ljemalloc`
- `-llflang`

### Fortran benchmarks:
- `-flto -Wl,-mllvm -Wl,-function-specialize`
- `-Wl,-mllvm -Wl,-region-vectorize -Wl,-mllvm -Wl,-vector-library=LIBMVEC`

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**Base Optimization Flags (Continued)**

Fortran benchmarks (continued):
- `W, -mlv -Wl, -reduce-array-computations=3 -3 -O3 -march=znver2`
- `funroll-loops -Mrecursive -mlv -vector-library=LIBMVEC -z muldefs`
- `Kee -fno-finite-math-only -DSPEC_OPENMP -fopenmp -fopenmp=libomp`
- `lomp -lpthread -ldl -lmvec -lmdlibm -ljemalloc -lfang`

Benchmarks using both Fortran and C:
- `flto -Wl, -mlv -fno-finite-math-only`
- `funroll-loops -Mrecursive -z muldefs`
- `lomp -lpthread -ldl -lmvec -lmdlibm -ljemalloc -lfang`

Benchmarks using Fortran, C, and C++:
- `std=c++98 -flto -Wl, -mlv -Wl, -function-specialize`
- `funroll-loops -Mrecursive -z muldefs`
- `lomp -lpthread -ldl -lmvec -lmdlibm -ljemalloc -lfang`

**Base Other Flags**

C benchmarks:
- `-Wno-return-type`

Fortran benchmarks:
- `-Wno-return-type`

Benchmarks using both Fortran and C:
- `-Wno-return-type`

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Base Other Flags (Continued)

Benchmarks using Fortran, C, and C++:
-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:
-f1to -Wl,-mlllvm -Wl,-function-specialize
-Wl,-mlllvm -Wl,-region-vectorize -Wl,-mlllvm -Wl,-vector-library=LIBMVEC
-Wl,-mlllvm -Wl,-reduce-array-computations=3 -Ofast -march=znver2
-mno-sse4a -fstruct-layout=5 -mlllvm -vectorize-memory-aggressively
-mlllvm -function-specialize -mlllvm -enable-gvn-hoist
-mlllvm -unroll-threshold=50 -fremap-arrays
-mlllvm -vector-library=LIBMVEC -mlllvm -reduce-array-computations=3
-mlllvm -global-vectorize-slp -mlllvm -inline-threshold=1000
-flv-function-specialization -DSPEC_OPENMP -fopenmp -lmvec -lamdlibm
-fopenmp=libomp -lomp -lpthread -ldl -ljemalloc -lflang

Fortran benchmarks:
603.bwaves_s: basepeak = yes

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Peak Optimization Flags (Continued)

649.fotonik3d_s: basepeak = yes

654.roms_s: -flto -Wl,-mllvm -Wl,-function-specialize
    -Wl,-mllvm -Wl,-region-vectorize
    -Wl,-mllvm -Wl,-vector-library=LIBMVEC
    -Wl,-mllvm -Wl,-reduce-array-computations=3
    -Wl,-mllvm -Wl,-enable-X86-prefetching -O3 -march=znver2
    -funroll-loops -Mrecursive -mllvm -vector-library=LIBMVEC
    -Kieee -fno-finite-math-only -DSPEC_OPENMP -fopenmp
    -fopenmp=libomp -lop -lpthread -ldl -lmvec -lamdlibm
    -ljemalloc -flang

Benchmarks using both Fortran and C:

621.wrf_s: -flto -Wl,-mllvm -Wl,-function-specialize
    -Wl,-mllvm -Wl,-region-vectorize
    -Wl,-mllvm -Wl,-vector-library=LIBMVEC
    -Wl,-mllvm -Wl,-reduce-array-computations=3
    -Ofast
    -march=znver2 -mno-sse4a -fstruct-layout=5
    -mllvm -vectorize-memory-aggressively
    -mllvm -function-specialize -mllvm -enable-gvn-hoist
    -mllvm -unroll-threshold=50 -fremap-arrays
    -mllvm -vector-library=LIBMVEC
    -mllvm -reduce-array-computations=3
    -mllvm -global-vectorize-slp -mllvm -inline-threshold=1000
    -flv-function-specialization -O3 -funroll-loops
    -Mrecursive -Kieee -fno-finite-math-only -DSPEC_OPENMP
    -fopenmp -fopenmp=libomp -lop -lpthread -ldl -lmvec
    -lamdlibm -ljemalloc -flang

627.cam4_s: basepeak = yes

628.pop2_s: basepeak = yes

Benchmarks using Fortran, C, and C++:

-std=c++98 -flto -Wl,-mllvm -Wl,-function-specialize
    -Wl,-mllvm -Wl,-region-vectorize -Wl,-mllvm -Wl,-vector-library=LIBMVEC
    -Wl,-mllvm -Wl,-reduce-array-computations=3
    -Ofast -march=znver2
    -mno-sse4a -fstruct-layout=5 -mllvm -vectorize-memory-aggressively
    -mllvm -function-specialize -mllvm -enable-gvn-hoist
    -mllvm -unroll-threshold=50 -fremap-arrays
    -mllvm -vector-library=LIBMVEC
    -mllvm -reduce-array-computations=3
    -mllvm -global-vectorize-slp -mllvm -inline-threshold=1000
    -flv-function-specialization -mllvm -unroll-threshold=100
    -mllvm -enable-partial-unswitch -mllvm -loop-unswitch-threshold=200000
    -O3 -funroll-loops -Mrecursive -Kieee -fno-finite-math-only

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Peak Optimization Flags (Continued)

Benchmarks using Fortran, C, and C++ (continued):
-DSPEC_OPENMP -fopenmp -fopenmp=libomp -lomp -lpthread -ldl -lmvec  
-lamdlibm -ljemalloc -lflang

Peak Other Flags

C benchmarks:
-Wno-return-type

Fortran benchmarks:
-Wno-return-type

Benchmarks using both Fortran and C:
-Wno-return-type

Benchmarks using Fortran, C, and C++:
-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-Rome2P-K.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-Rome2P-K.xml

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