Lenovo Global Technology
ThinkSystem SR645 V3
(2.75 GHz, AMD EPYC 9454)

SPECrater®2017_int_base = 1030
SPECrater®2017_int_peak = 1080

CPU2017 License: 9017
Test Sponsor: Lenovo Global Technology
Tested by: Lenovo Global Technology
Hardware Availability: Feb-2023
Software Availability: Nov-2022

Test Date: Jan-2023

500.perlbench_r 192
   502.gcc_r 192
   505.mcf_r 192
   520.omnetpp_r 192
   523.xalancbmk_r 192
   525.x264_r 192
   531.deepsjeng_r 192
   541.leela_r 192
   548.exchange2_r 192
   557.xz_r 192

Hardware
CPU Name: AMD EPYC 9454
Max MHz: 3800
Nominal: 2750
Enabled: 96 cores, 2 chips, 2 threads/core
Orderable: 1.2 chips
Cache L1: 32 KB I + 32 KB D on chip per core
L2: 1 MB I+D on chip per core
L3: 256 MB I+D on chip per chip,
    32 MB shared / 6 cores
Other: None
Memory: 768 GB (24 x 32 GB 2Rx8 PC5-4800B-R)
Storage: 1 x 960 GB SATA SSD
Other: None

Software
OS: Ubuntu 22.04.1 LTS
Kernel 5.15.0-43-generic
Compiler: C/C++/Fortran: Version 4.0.0 of AOCC
Parallel: No
Firmware: Lenovo BIOS Version KAE105F 1.20 released Dec-2022
File System: ext4
System State: Run level 5 (multi-user)
Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other: None
Power Management: BIOS and OS set to prefer performance at the cost of additional power usage
Lenovo Global Technology

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Results Table

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<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
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<td>505.mcf_r</td>
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<td>857</td>
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<td>192</td>
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<td>2400</td>
<td>209</td>
<td>2410</td>
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<td>557.xz_r</td>
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<td><strong>520</strong></td>
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<td><strong>519</strong></td>
</tr>
</tbody>
</table>

**SPECrate®2017_int_base = 1030**

**SPECrate®2017_int_peak = 1080**

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 limit
'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>

To limit dirty cache to 8% of memory, 'sysctl -w vm.dirty_ratio=8' run as root.
To limit swap usage to minimum necessary, 'sysctl -w vm.swappiness=1' run as root.
To free node-local memory and avoid remote memory usage, 'sysctl -w vm.zone_reclaim_mode=1' run as root.
To clear filesystem caches, 'sync; sysctl -w vm.drop_caches=3' run as root.
To disable address space layout randomization (ASLR) to reduce run-to-run variability, 'sysctl -w kernel.randomize_va_space=0' run as root.

(Continued on next page)
Lenovo Global Technology
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(2.75 GHz, AMD EPYC 9454)

SPEC CPU®2017 Integer Rate Result

| SPECrate®2017_int_base = 1030 |
| SPECrate®2017_int_peak = 1080 |

**Operating System Notes (Continued)**

To enable Transparent Hugepages (THP) only on request for base runs, 'echo madvise > /sys/kernel/mm/transparent_hugepage/enabled' run as root.
To enable THP for all allocations for peak runs, 'echo always > /sys/kernel/mm/transparent_hugepage/enabled' and
'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:
LD_LIBRARY_PATH =
"/home/cpu2017-1.1.8-amd-aocc400-genoa-B1b/amd_rate_aocc400_genoa_B_lib/
lib:/home/cpu2017-1.1.8-amd-aocc400-genoa-B1b/amd_rate_aocc400_genoa_B_l
lib/lib32:"
MALLOC_CONF = "retain:true"

Environment variables set by runcpu during the 523.xalancbmk_r peak run:
MALLOC_CONF = "thp:never"

**General Notes**

Binaries were compiled on a system with 2x AMD EPYC 9174F CPU + 1.5TiB Memory using RHEL 8.6

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.

**Platform Notes**

BIOS configuration:
Operating Mode set to Maximum Performance and then set it to Custom Mode
NUMA Nodes per Socket set to NPS4

Sysinfo program /home/cpu2017-1.1.8-amd-aocc400-genoa-B1b/bin/sysinfo
Rev: r6622 of 2021-04-07 982a61ec915b55891ef0e16aca56c4d
running on perf Mon Jun 27 18:33:05 2022

SUT (System Under Test) info as seen by some common utilities.
For more information on this section, see

(Continued on next page)
Platform Notes (Continued)

From /proc/cpuinfo

model name: AMD EPYC 9454 48-Core Processor
2 "physical id"s (chips)
192 "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: 96
physical 0: cores 0 1 2 3 4 5 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 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 from util-linux 2.37.2:

Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Address sizes: 52 bits physical, 57 bits virtual
Byte Order: Little Endian
CPU(s): 192
On-line CPU(s) list: 0-191
Vendor ID: AuthenticAMD
Model name: AMD EPYC 9454 48-Core Processor
CPU family: 25
Model: 17
Thread(s) per core: 2
Core(s) per socket: 48
Socket(s): 2
Stepping: 1
Frequency boost: enabled
CPU max MHz: 3812.0000
CPU min MHz: 400.0000
BogoMIPS: 5491.81
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
pde pch cm tsc rdsc cpuid extd_apicid
aperfmerf rapl pni pclmulqdq monitor ssse3 fma cx16 pcid sse4_1 sse4_2 x2apic movbe
popcnt aes xsave avx f16c rdrand lahf_lm cmp_legacy svm extapic cr8 Legacy abm sse4a
misalignsse 3dnowprefetch osw ibs kinit wdt tce topoext perfctr_core perfctr_nb
bext perfctr_llc mwaitx cpb cat_l3 cdp_l3 invpcid_single hw_pstate ssbd mba ibrs
ibpb stibp vmcall fsgsbase bmi1 avx2 smeip bm12 erms invpcid cqmd rdt_a avx512f
avx512d rdseed adx smap avx512ifma clflushopt clwb avx512cd sha_ni avx512bw
avx512vl xsaveopt xsave xgetenv xsavec cmx m3m occup_llc cmq mbm total
avx mbm local avx512_bf16 clzero irperf xsaveeprtr rdpn vbmoinvd amd_pip ccpp arat
npt lbrv svm_lock nrip_save tsc_scale vmbc_clean flushbyasid decodeassist
pausefilter pfthreshold avic v_vmsave_vmload vgif v_spec_ctrl avx512vbmi umip pku

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Platform Notes (Continued)

ospke avx512_vbmi2 gfn vaes vpcmuleqdq avx512_vnni avx512_bitalg avx512_vpopcntdq
la57 rdpid overflow_recover success smca fsrm flush_l1d

Virtualization: AMD-V
L1d cache: 3 MiB (96 instances)
L1i cache: 3 MiB (96 instances)
L2 cache: 96 MiB (96 instances)
L3 cache: 512 MiB (16 instances)
NUMA node(s):

NUMA node0 CPU(s): 0-11, 96-107
NUMA node1 CPU(s): 12-23, 108-119
NUMA node2 CPU(s): 24-35, 120-131
NUMA node3 CPU(s): 36-47, 132-143
NUMA node4 CPU(s): 48-59, 144-155
NUMA node5 CPU(s): 60-71, 156-167
NUMA node6 CPU(s): 72-83, 168-179
NUMA node7 CPU(s): 84-95, 180-191

Vulnerability Itlb multihit: Not affected
Vulnerability L1tf: Not affected
Vulnerability Mds: Not affected
Vulnerability Meltdown: Not affected
Vulnerability Mmio stale data: Not affected
Vulnerability Spec store bypass: Mitigation; Speculative Store Bypass disabled via
prctl and seccomp
Vulnerability Spectre v1: Mitigation; usercopy/swapgs barriers and __user
pointer sanitization
Vulnerability Spectre v2: Mitigation; Retpolines, IBPB conditional, IBRS_FW,
STIBP always-on, RSB filling
Vulnerability Srbd: Not affected
Vulnerability Tsx async abort: Not affected

From lscpu --cache:
NAME ONE-SIZE ALL-SIZE WAYS TYPE LEVEL SETS PHY-LINE COHERENCY-SIZE
L1d 32K 3M 8 Data 1 64 1 64
L1i 32K 3M 8 Instruction 1 64 1 64
L2 1M 96M 8 Unified 2 2048 1 64
L3 32M 512M 16 Unified 3 32768 1 64

From numactl --hardware
WARNING: a numactl 'node' might or might not correspond to a physical chip.
available: 8 nodes (0-7)
node 0 cpus: 0 1 2 3 4 5 6 7 9 10 11 96 97 98 99 100 101 102 103 104 105 106 107
node 0 size: 96379 MB
node 0 free: 95284 MB
node 1 cpus: 12 13 14 15 16 17 18 19 20 21 22 23 108 109 110 111 112 113 114 115 116

(Continued on next page)
## SPEC CPU®2017 Integer Rate Result

**Lenovo Global Technology**  
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**Platform Notes (Continued)**

```
117 118 119
 node 1 size: 96719 MB
 node 1 free: 95869 MB
 node 2 cpus: 24 25 26 27 28 29 30 31 32 33 34 35 120 121 122 123 124 125 126 127 128  
 129 130 131
 node 2 size: 96752 MB
 node 2 free: 95813 MB
 node 3 cpus: 36 37 38 39 40 41 42 43 44 45 46 47 132 133 134 135 136 137 138 139 140  
 141 142 143
 node 3 size: 96752 MB
 node 3 free: 95931 MB
 node 4 cpus: 48 49 50 51 52 53 54 55 56 57 58 59 144 145 146 147 148 149 150 151 152  
 153 154 155
 node 4 size: 96752 MB
 node 4 free: 96139 MB
 node 5 cpus: 60 61 62 63 64 65 66 67 68 69 70 71 156 157 158 159 160 161 162 163 164  
 165 166 167
 node 5 size: 96752 MB
 node 5 free: 96111 MB
 node 6 cpus: 72 73 74 75 76 77 78 79 80 81 82 83 168 169 170 171 172 173 174 175 176  
 177 178 179
 node 6 size: 96752 MB
 node 6 free: 96083 MB
 node 7 cpus: 84 85 86 87 88 89 90 91 92 93 94 95 180 181 182 183 184 185 186 187 188  
 189 190 191
 node 7 size: 96689 MB
 node 7 free: 96045 MB
 node distances:
 node 0 1 2 3 4 5 6 7
 0: 10 12 12 12 32 32 32 32
 1: 12 10 12 12 32 32 32 32
 2: 12 12 10 12 32 32 32 32
 3: 12 12 12 10 32 32 32 32
 4: 32 32 32 32 10 12 12 12
 5: 32 32 32 32 12 10 12 12
 6: 32 32 32 32 12 12 10 12
 7: 32 32 32 32 12 12 12 10

From /proc/meminfo
 MemTotal: 792116876 kB
 HugePages_Total: 0
 Hugepagesize: 2048 kB

/sys/devices/system/cpu/cpu*/cpufreq/scaling_governor has performance
/usr/bin/lsb_release -d
```

(Continued on next page)
Platform Notes (Continued)

Ubuntu 22.04.1 LTS

From /etc/*release* /etc/*version*
debian_version: bookworm/sid
os-release:
    PRETTY_NAME="Ubuntu 22.04.1 LTS"
    NAME="Ubuntu"
    VERSION_ID="22.04"
    VERSION="22.04.1 LTS (Jammy Jellyfish)"
    VERSION_CODENAME=jammy
    ID=ubuntu
    ID_LIKE=debian
    HOME_URL="https://www.ubuntu.com/"

uname -a:
    Linux perf 5.15.0-43-generic #46-Ubuntu SMP Tue Jul 12 10:30:17 UTC 2022 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
    mmio_stale_data:
    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: Retpolines, IBPB:
    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 5 Jun 27 18:29

SPEC is set to: /home/cpu2017-1.1.8-amd-aocc400-genoa-B1b
Filesystem Type Size Used Avail Use% Mounted on
/dev/sda2 ext4 878G 20G 814G 3% /

From /sys/devices/virtual/dmi/id
Vendor: Lenovo
Product: ThinkSystem SR645 V3 MB,Genoa,DDR5,Oahu,1U
Product Family: ThinkSystem

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Lenovo Global Technology

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SPEC CPU®2017 Integer Rate Result

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Platform Notes (Continued)

Serial: 1234567890

Additional information from dmidecode 3.3 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:
7x SK Hynix HMCG88AEBA115N 32 GB 2 rank 4800
17x SK Hynix HMCG88AEBA168N 32 GB 2 rank 4800

BIOS:
BIOS Vendor: Lenovo
BIOS Version: KAE105F-1.20
BIOS Date: 12/01/2022
BIOS Revision: 1.20
Firmware Revision: 1.20

(End of data from sysinfo program)

Compiler Version Notes

==============================================================================
C       | 502.gcc_r(peak)
-----------------------------------------------------------------------------
AMDC clang version 14.0.6 (CLANG: AOCC_4.0.0-Build#389 2022_10_07) (based on LLVM Mirror.Version.14.0.6)
Target: i386-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-4.0-3206-389/bin
-----------------------------------------------------------------------------

==============================================================================
C       | 500.perlbench_r(base, peak) 502.gcc_r(base) 505.mcf_r(base, peak) 525.x264_r(base, peak) 557.xz_r(base, peak)
-----------------------------------------------------------------------------
AMDC clang version 14.0.6 (CLANG: AOCC_4.0.0-Build#389 2022_10_07) (based on LLVM Mirror.Version.14.0.6)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-4.0-3206-389/bin
-----------------------------------------------------------------------------

==============================================================================
C       | 502.gcc_r(peak)
-----------------------------------------------------------------------------
AMDC clang version 14.0.6 (CLANG: AOCC_4.0.0-Build#389 2022_10_07) (based on

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

- LLVM Mirror.Version.14.0.6
- Target: i386-unknown-linux-gnu
- Thread model: posix
- InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-4.0-3206-389/bin

---

AMD clang version 14.0.6 (CLANG: AOCC_4.0.0-Build#389 2022_10_07) (based on LLVM Mirror.Version.14.0.6)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-4.0-3206-389/bin

---

AMD clang version 14.0.6 (CLANG: AOCC_4.0.0-Build#389 2022_10_07) (based on LLVM Mirror.Version.14.0.6)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-4.0-3206-389/bin

---

AMD clang version 14.0.6 (CLANG: AOCC_4.0.0-Build#389 2022_10_07) (based on LLVM Mirror.Version.14.0.6)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-4.0-3206-389/bin

---

AMD clang version 14.0.6 (CLANG: AOCC_4.0.0-Build#389 2022_10_07) (based on LLVM Mirror.Version.14.0.6)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-4.0-3206-389/bin

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Base Compiler Invocation

C benchmarks:
clang

C++ benchmarks:
clang++

Fortran benchmarks:
flang

Base Portability Flags

500.perlbench_r: -DSPEC_LINUX_X64 -DSPEC_LP64
502.gcc_r: -DSPEC_LP64
505.mcf_r: -DSPEC_LP64
520.omnetpp_r: -DSPEC_LP64
523.xalancbmk_r: -DSPEC_LINUX -DSPEC_LP64
525.x264_r: -DSPEC_LP64
531.deepsjeng_r: -DSPEC_LP64
541.leela_r: -DSPEC_LP64

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548.exchange2_r: -DSPEC_LP64
557.xz_r: -DSPEC_LP64

Base Portability Flags (Continued)

Base Optimization Flags

C benchmarks:
-m64 -flto -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-ldist-scalar-expand -fenable-aggressive-gather
-z muldefs -O3 -march=znver4 -fveclib=AMDLIBM -ffast-math
-fstruct-layout=7 -mllvm -unroll-threshold=50
-mllvm -inline-threshold=1000 -fremap-arrays -fstrip-mining
-mllvm -reduce-array-computations=3 -zopt -lamdlibm -lflang
-lamdaalloc

C++ benchmarks:
-m64 -flto -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3 -z muldefs -O3
-march=znver4 -fveclib=AMDLIBM -ffast-math
-mllvm -reduce-array-computations=3 -zopt
-fvirtual-function-elimination -fvisibility=hidden -lamdlibm -lflang
-lamdaalloc-ext

Fortran benchmarks:
-m64 -flto -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-inline-recursion=4 -Wl,-mllvm -Wl,-lsr-in-nested-loop
-Wl,-mllvm -Wl,-enable-iv-split -z muldefs -O3 -march=znver4
-fveclib=AMDLIBM -ffast-math -fepilog-vectorization-of-inductions
-mllvm -optimize-strided-mem-cost -floop-transform
-mllvm -unroll-aggressive -mllvm -unroll-threshold=500 -lamdlibm
-lflang -lamdaalloc

Base Other Flags

C benchmarks:
-Wno-unused-command-line-argument

C++ benchmarks:
-Wno-unused-command-line-argument

(Continued on next page)
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Software Availability: Nov-2022

Base Other Flags (Continued)

Fortran benchmarks:
-Wno-unused-command-line-argument

Peak Compiler Invocation

C benchmarks:
clang
C++ benchmarks:
clang++

Fortran benchmarks:
flang

Peak Portability Flags

500.perlbench_r: -DSPEC_LINUX_X64 -DSPEC_LP64
502.gcc_r: -D_FILE_OFFSET_BITS=64
505.mcf_r: -DSPEC_LP64
520.omnetpp_r: -DSPEC_LP64
523.xalancbmk_r: -DSPEC_LINUX -DSPEC_LP64
525.x264_r: -DSPEC_LP64
531.deepsjeng_r: -DSPEC_LP64
541.leela_r: -DSPEC_LP64
548.exchange2_r: -DSPEC_LP64
557.xz_r: -DSPEC_LP64

Peak Optimization Flags

C benchmarks:
500.perlbench_r: basepeak = yes
502.gcc_r: -m32 -flto -z muldefs -Ofast -march=znver4
-fveclib=AMDLIBM -ffast-math -fstruct-layout=7
-mlvm -unroll-threshold=50 -fremap-arrays -fstrip-mining
-mlvm -inline-threshold=1000
-mlvm -reduce-array-computations=3 -zopt -fgnu89-inline

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SPEC CPU®2017 Integer Rate Result
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Lenovo Global Technology
ThinkSystem SR645 V3 (2.75 GHz, AMD EPYC 9454)

SPECrates®2017_int_base = 1030
SPECrates®2017_int_peak = 1080

CPU2017 License: 9017
Test Sponsor: Lenovo Global Technology
Test Date: Jan-2023
Tested by: Lenovo Global Technology
Hardware Availability: Feb-2023
Software Availability: Nov-2022

Peak Optimization Flags (Continued)

502/gcc_r (continued):
-llamdalloc

505/mcf_r: -m64 -flto -Wl,-ml1vm -Wl,-align-all-nofallthru-blocks=6
-Wl,-ml1vm -Wl,-reduce-array-computations=3 -Ofast
-march=znver4 -fveclib=AMDLIBM -ffast-math
-fstruct-layout=7 -ml1vm -unroll-threshold=50
-freemap-arrays -fstrip-mining
-ml1vm -inline-threshold=1000
-ml1vm -reduce-array-computations=3 -zopt -lamdlibm
-llflang -llamdalloc

525/x264_r: basepeak = yes
557/xz_r: basepeak = yes

C++ benchmarks:

520/omnetpp_r: basepeak = yes

523/xalancbmk_r: -m32 -flto -Wl,-ml1vm -Wl,-align-all-nofallthru-blocks=6
-Wl,-ml1vm -Wl,-reduce-array-computations=3
-Wl,-ml1vm -Wl,-do-block-reorder=aggressive
-fno-loop-reroll -Ofast -march=znver4 -fveclib=AMDLIBM
-ffast-math -finline-aggressive
-ml1vm -unroll-threshold=100
-ml1vm -reduce-array-computations=3 -zopt
-ml1vm -do-block-reorder=aggressive
-fvirtual-function-elimination -fvisibility=hidden
-llamdalloc-ext

531/deepsjeng_r: basepeak = yes
541/leela_r: basepeak = yes

Fortran benchmarks:

548/exchange2_r: basepeak = yes

Peak Other Flags

C benchmarks (except as noted below):
-\(-Wno-unused-command-line-argument\)

(Continued on next page)
**Lenovo Global Technology**  
ThinkSystem SR645 V3  
(2.75 GHz, AMD EPYC 9454)

| SPECrate®2017_int_base = 1030 | Test Date: Jan-2023 |
| SPECrate®2017_int_peak = 1080 | Hardware Availability: Feb-2023 |

**Peak Other Flags (Continued)**

502.gcc_r: -L/usr/lib32 -Wno-unused-command-line-argument  
-L/home/work/cpu2017/v118/aocc4/b1/rate/amd_rate_aocc400_genoa_B_lib/lib32

C++ benchmarks (except as noted below):  
-Wno-unused-command-line-argument

523.xalancbmk_r: -L/usr/lib32 -Wno-unused-command-line-argument  
-L/home/work/cpu2017/v118/aocc4/b1/rate/amd_rate_aocc400_genoa_B_lib/lib32

Fortran benchmarks:  
-Wno-unused-command-line-argument

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-Genoa-O.html  
http://www.spec.org/cpu2017/flags/aocc400-flags.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-Genoa-O.xml  
http://www.spec.org/cpu2017/flags/aocc400-flags.xml

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