SPEC CPU®2017 Integer Rate Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

Lenovo Global Technology

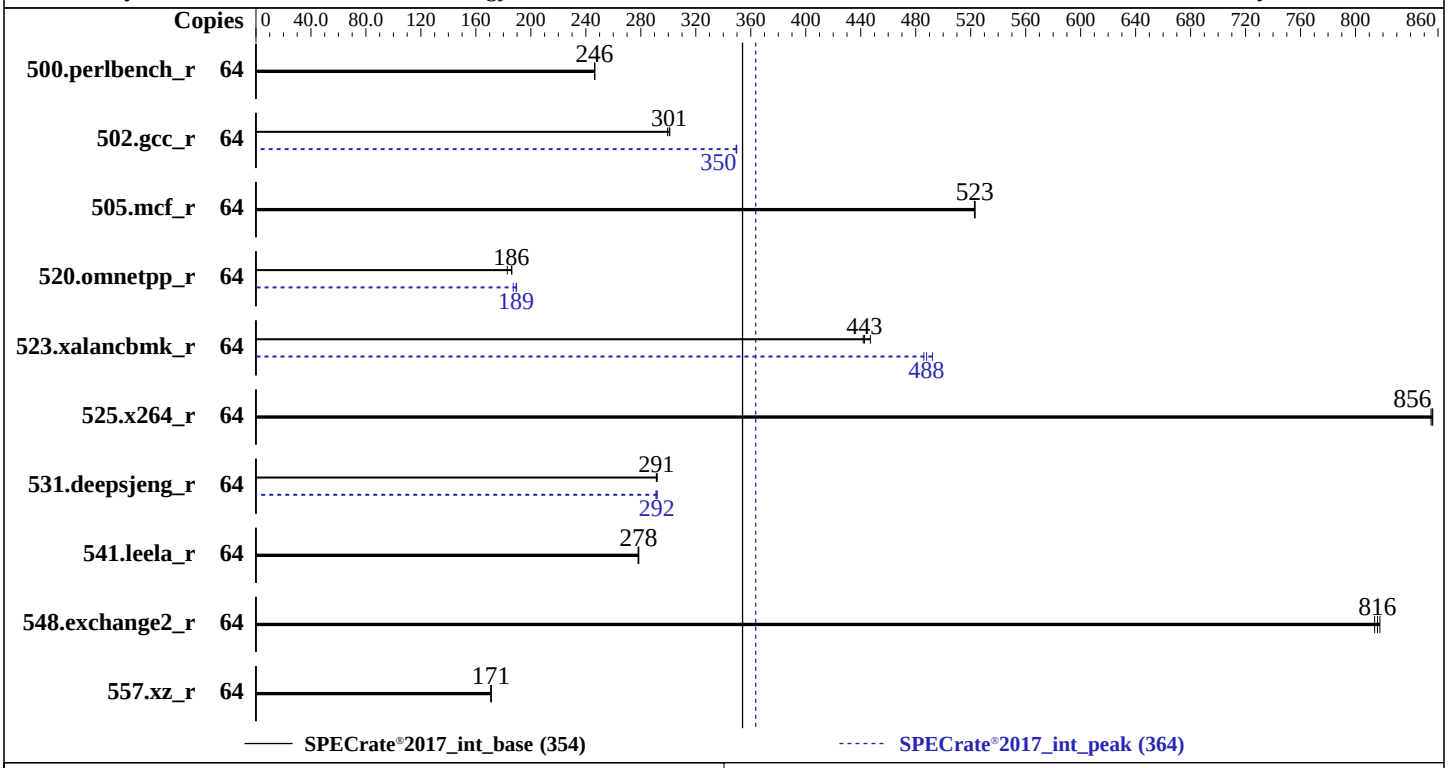
ThinkSystem SR665 V3
(3.00 GHz,AMD EPYC 9124)

SPECrate®2017_int_base = 354

SPECrate®2017_int_peak = 364

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

Test Date: Nov-2022
Hardware Availability: Feb-2023
Software Availability: Nov-2022



Hardware

CPU Name:	AMD EPYC 9124
Max MHz:	3700
Nominal:	3000
Enabled:	32 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:	64 MB I+D on chip per chip, 16 MB shared / 4 cores
Other:	None
Memory:	1536 GB (24 x 64 GB 2Rx4 PC5-4800B-R)
Storage:	1 x 480 GB SATA SSD
Other:	None

Software

OS:	Ubuntu 22.04.1 LTS Kernel 5.15.0-52-generic
Compiler:	C/C++/Fortran: Version 4.0.0 of AOCC
Parallel:	No
Firmware:	Lenovo BIOS Version KAE105C 1.20 released Nov-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

SPEC CPU®2017 Integer Rate Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

Lenovo Global Technology

ThinkSystem SR665 V3
(3.00 GHz,AMD EPYC 9124)

SPECrate®2017_int_base = 354

SPECrate®2017_int_peak = 364

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

Test Date: Nov-2022
Hardware Availability: Feb-2023
Software Availability: Nov-2022

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
500.perlbench_r	64	414	246	**414**	**246**	413	247	64	414	246	**414**	**246**	413	247
502.gcc_r	64	301	301	303	299	**301**	**301**	64	259	350	**259**	**350**	259	349
505.mcf_r	64	**198**	**523**	198	523	198	523	64	**198**	**523**	198	523	198	523
520.omnetpp_r	64	**451**	**186**	451	186	459	183	64	**444**	**189**	449	187	443	190
523.xalancbmk_r	64	**153**	**443**	151	447	153	442	64	139	486	**139**	**488**	137	492
525.x264_r	64	131	855	131	856	**131**	**856**	64	131	855	131	856	**131**	**856**
531.deepsjeng_r	64	**252**	**291**	252	291	251	292	64	251	292	252	291	**252**	**292**
541.leela_r	64	381	278	**381**	**278**	381	279	64	381	278	**381**	**278**	381	279
548.exchange2_r	64	206	814	205	818	**205**	**816**	64	206	814	205	818	**205**	**816**
557.xz_r	64	404	171	405	171	**404**	**171**	64	404	171	405	171	**404**	**171**

SPECrate®2017_int_base = 354

SPECrate®2017_int_peak = 364

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)

Operating System Notes (Continued)

```
echo 0 > /proc/sys/kernel/numa_balancing
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
      ib/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 982a61ec0915b55891ef0e16acafc64d
 running on perf Sun Nov 13 00:37:09 2022

 SUT (System Under Test) info as seen by some common utilities.
```

(Continued on next page)

Platform Notes (Continued)

```
For more information on this section, see
   https://www.spec.org/cpu2017/Docs/config.html#sysinfo

From /proc/cpuinfo
   model name : AMD EPYC 9124 16-Core Processor
      2  "physical id"s (chips)
      64 "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 10 11 16 17 18 19 24 25 26 27
      physical 1: cores 0 1 2 3 10 11 16 17 18 19 24 25 26 27

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):                          64
     On-line CPU(s) list:             0-63
     Vendor ID:                       AuthenticAMD
     Model name:                      AMD EPYC 9124 16-Core Processor
     CPU family:                      25
     Model:                           17
     Thread(s) per core:              2
     Core(s) per socket:              16
     Socket(s):                       2
     Stepping:                        1
     Frequency boost:                 enabled
     CPU max MHz:                     3713.0000
     CPU min MHz:                     400.0000
     BogoMIPS:                        5990.71
     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 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 osvw ibs skinit wdt tce topoext perfctr_core perfctr_nb
     bpext 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 cqm rdt_a avx512f
     avx512dq rdseed adx smap avx512ifma clflushopt clwb avx512cd sha_ni avx512bw
     avx512vl xsaveopt xsavec xgetbv1 xsaves cqm_llc cqm_occup_llc cqm_mbm_total
     cqm_mbm_local avx512_bf16 clzero irperf xsaveerptr rdpru wbnoinvd amd_ppin cppc arat
     npt lbrv svm_lock nrip_save tsc_scale vmcb_clean flushbyasid decodeassists
     pausefilter pfthreshold avic v_vmsave_vmload vgif v_spec_ctrl avx512vbmi umip pku
     ospke avx512_vbmi2 gfni vaes vpclmulqdq avx512_vnni avx512_bitalg avx512_vpopcntdq
```

(Continued on next page)

Platform Notes (Continued)

```
      la57 rdpid overflow_recov succor smca fsrm flush_l1d
      Virtualization:                  AMD-V
      L1d cache:                       1 MiB (32 instances)
      L1i cache:                       1 MiB (32 instances)
      L2 cache:                        32 MiB (32 instances)
      L3 cache:                        128 MiB (8 instances)
      NUMA node(s):                    8
      NUMA node0 CPU(s):               0-3,32-35
      NUMA node1 CPU(s):               4-7,36-39
      NUMA node2 CPU(s):               8-11,40-43
      NUMA node3 CPU(s):               12-15,44-47
      NUMA node4 CPU(s):               16-19,48-51
      NUMA node5 CPU(s):               20-23,52-55
      NUMA node6 CPU(s):               24-27,56-59
      NUMA node7 CPU(s):               28-31,60-63
      Vulnerability Itlb multihit:     Not affected
      Vulnerability L1tf:              Not affected
      Vulnerability Mds:               Not affected
      Vulnerability Meltdown:          Not affected
      Vulnerability Mmio stale data:   Not affected
      Vulnerability Retbleed:          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, PBRSB-eIBRS Not affected
      Vulnerability Srbds:             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       1M    8 Data            1    64        1             64
      L1i       32K       1M    8 Instruction     1    64        1             64
      L2         1M      32M    8 Unified         2  2048        1             64
      L3        16M     128M   16 Unified         3 16384        1             64

  /proc/cpuinfo cache data
     cache size : 1024 KB

  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 32 33 34 35
    node 0 size: 193148 MB
    node 0 free: 192468 MB
    node 1 cpus: 4 5 6 7 36 37 38 39
```

(Continued on next page)

Platform Notes (Continued)

```
   node 1 size: 193520 MB
   node 1 free: 192870 MB
   node 2 cpus: 8 9 10 11 40 41 42 43
   node 2 size: 193520 MB
   node 2 free: 192908 MB
   node 3 cpus: 12 13 14 15 44 45 46 47
   node 3 size: 193520 MB
   node 3 free: 192894 MB
   node 4 cpus: 16 17 18 19 48 49 50 51
   node 4 size: 193485 MB
   node 4 free: 193003 MB
   node 5 cpus: 20 21 22 23 52 53 54 55
   node 5 size: 193520 MB
   node 5 free: 193036 MB
   node 6 cpus: 24 25 26 27 56 57 58 59
   node 6 size: 193520 MB
   node 6 free: 193062 MB
   node 7 cpus: 28 29 30 31 60 61 62 63
   node 7 size: 193461 MB
   node 7 free: 193001 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:       1584843660 kB
    HugePages_Total:       0
    Hugepagesize:       2048 kB

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

 /usr/bin/lsb_release -d
    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"
```

(Continued on next page)

Platform Notes (Continued)

```
      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 5.15.0-52-generic #58-Ubuntu SMP Thu Oct 13 08:03:55 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
retbleed:                                              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: Retpolines, IBPB:
                                                       conditional, IBRS_FW, STIBP:
                                                       always-on, RSB filling,
                                                       PBRSB-eIBRS: Not affected
CVE-2020-0543 (Special Register Buffer Data Sampling): Not affected
CVE-2019-11135 (TSX Asynchronous Abort):               Not affected

run-level 5 Nov 13 00:34

SPEC is set to: /home/cpu2017-1.1.8-amd-aocc400-genoa-B1b
   Filesystem     Type  Size  Used Avail Use% Mounted on
   /dev/sdb2      ext4  437G   20G  396G   5% /

From /sys/devices/virtual/dmi/id
    Vendor:          Lenovo
    Product:         ThinkSystem SR665 V3 MB,Genoa,Kauai,DDR5,Kauai,2U
    Product Family: ThinkSystem
    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
```

(Continued on next page)

Platform Notes (Continued)

```
 frequent changes to hardware, firmware, and the "DMTF SMBIOS" standard.
   Memory:
     24x SK Hynix HMCG94AEBRA102N 64 GB 2 rank 4800

 BIOS:
    BIOS Vendor:       Lenovo
    BIOS Version:      KAE105C-1.20
    BIOS Date:         11/04/2022
    BIOS Revision:     1.20
    Firmware Revision: 1.20

 (End of data from sysinfo program)
```

Compiler Version Notes

```
==============================================================================
C       | 502.gcc_r(peak)
------------------------------------------------------------------------------
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: 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)
------------------------------------------------------------------------------
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
------------------------------------------------------------------------------

==============================================================================
C       | 502.gcc_r(peak)
------------------------------------------------------------------------------
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: i386-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-4.0-3206-389/bin
------------------------------------------------------------------------------
```


(Continued on next page)

Compiler Version Notes (Continued)

```
==============================================================================
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)
------------------------------------------------------------------------------
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
------------------------------------------------------------------------------

==============================================================================
C++     | 523.xalancbmk_r(peak)
------------------------------------------------------------------------------
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: i386-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-4.0-3206-389/bin
------------------------------------------------------------------------------

==============================================================================
C++     | 520.omnetpp_r(base, peak) 523.xalancbmk_r(base)
        | 531.deepsjeng_r(base, peak) 541.leela_r(base, peak)
------------------------------------------------------------------------------
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
------------------------------------------------------------------------------

==============================================================================
C++     | 523.xalancbmk_r(peak)
------------------------------------------------------------------------------
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: i386-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-4.0-3206-389/bin
------------------------------------------------------------------------------

==============================================================================
C++     | 520.omnetpp_r(base, peak) 523.xalancbmk_r(base)
        | 531.deepsjeng_r(base, peak) 541.leela_r(base, peak)
------------------------------------------------------------------------------
AMD clang version 14.0.6 (CLANG: AOCC_4.0.0-Build#389 2022_10_07) (based on
```

(Continued on next page)

Compiler Version Notes (Continued)

```
  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
------------------------------------------------------------------------------

==============================================================================
Fortran | 548.exchange2_r(base, peak)
------------------------------------------------------------------------------
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
------------------------------------------------------------------------------
```

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

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
-lamdalloc

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 -unroll-threshold=100 -finline-aggressive
-mllvm -loop-unswitch-threshold=200000
-mllvm -reduce-array-computations=3 -zopt
-fvirtual-function-elimination -fvisibility=hidden -lamdlibm -lflang
-lamdalloc-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 -lamdalloc

Base Other Flags

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

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

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
-mllvm -unroll-threshold=50 -fremap-arrays -fstrip-mining
-mllvm -inline-threshold=1000
-mllvm -reduce-array-computations=3 -zopt -fgnu89-inline
-lamdalloc

505.mcf_r: basepeak = yes

525.x264_r: basepeak = yes

557.xz_r: basepeak = yes

(Continued on next page)

Peak Optimization Flags (Continued)

C++ benchmarks:

520.omnetpp_r: `-m64 -flto -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6 -Wl,-mllvm -Wl,-reduce-array-computations=3 -Ofast -march=znver4 -fveclib=AMDLIBM -ffast-math -finline-aggressive -mllvm -unroll-threshold=100 -mllvm -reduce-array-computations=3 -zopt -fvirtual-function-elimination -fvisibility=hidden -lamdlibm -lamdalloc-ext`

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

531.deepsjeng_r: `-m64 -flto -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6 -Wl,-mllvm -Wl,-reduce-array-computations=3 -O3 -march=znver4 -fveclib=AMDLIBM -ffast-math -mllvm -unroll-threshold=100 -finline-aggressive -mllvm -loop-unswitch-threshold=200000 -mllvm -reduce-array-computations=3 -zopt -fvirtual-function-elimination -fvisibility=hidden -lamdlibm -lamdalloc-ext`

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`

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`

(Continued on next page)

Peak Other Flags (Continued)

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/aocc400-flags.html`
`http://www.spec.org/cpu2017/flags/Lenovo-Platform-SPECcpu2017-Flags-V1.2-Genoa-O.html`

You can also download the XML flags sources by saving the following links:
`http://www.spec.org/cpu2017/flags/aocc400-flags.xml`
`http://www.spec.org/cpu2017/flags/Lenovo-Platform-SPECcpu2017-Flags-V1.2-Genoa-O.xml`

SPEC CPU and SPECrate are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

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

Tested with SPEC CPU®2017 v1.1.8 on 2022-11-12 19:37:09-0500.
Report generated on 2022-12-07 10:44:16 by CPU2017 PS formatter v6442.
Originally published on 2022-12-06.