



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

## ASUSTeK Computer Inc.

ASUS RS520A-E12-RS12U  
(2.45 GHz, AMD EPYC 9534)

SPECspeed®2017\_int\_base = 14.0

SPECspeed®2017\_int\_peak = 14.2

CPU2017 License: 9016

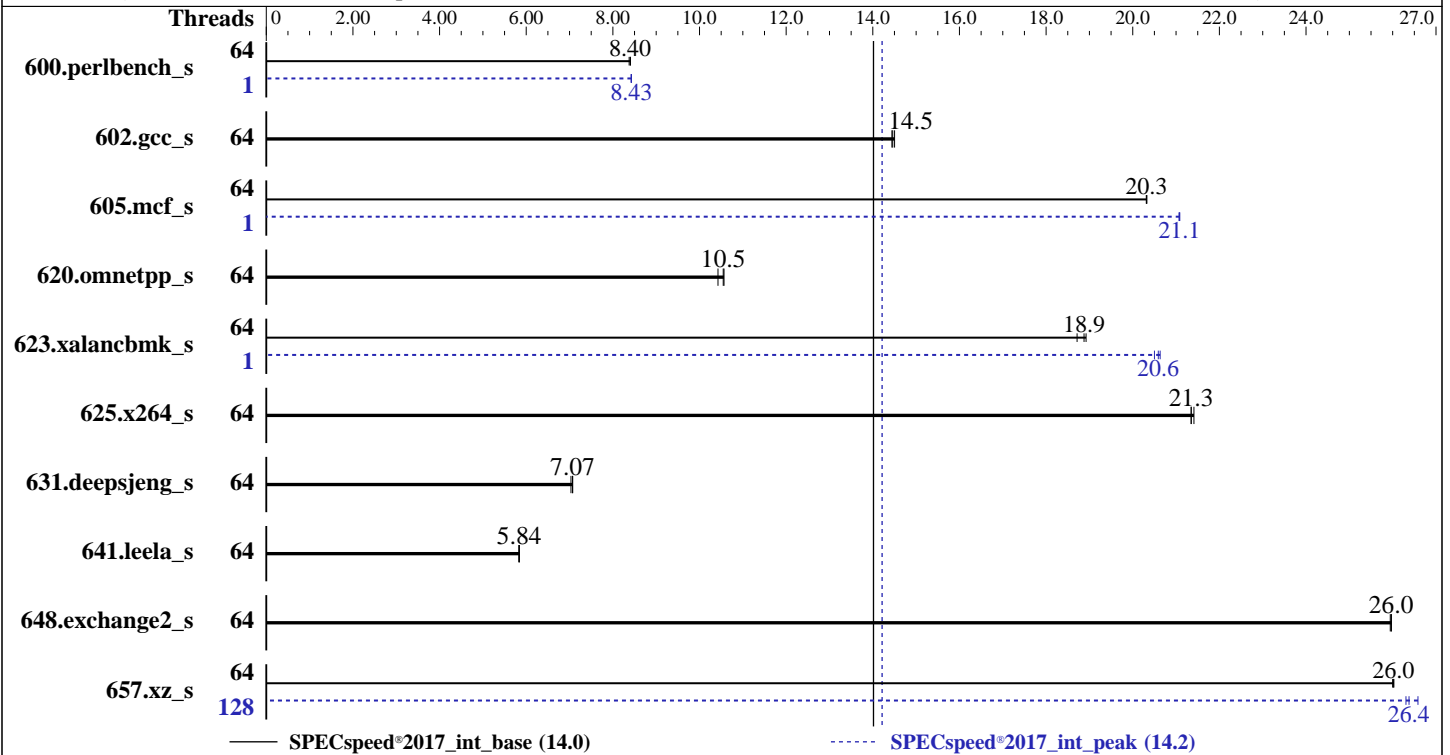
Test Sponsor: ASUSTeK Computer Inc.

Tested by: ASUSTeK Computer Inc.

Test Date: Jul-2023

Hardware Availability: Nov-2022

Software Availability: Nov-2022



### Hardware

CPU Name: AMD EPYC 9534  
 Max MHz: 3700  
 Nominal: 2450  
 Enabled: 64 cores, 1 chip, 2 threads/core  
 Orderable: 1 chip  
 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 / 8 cores  
 Other: None  
 Memory: 768 GB (12 x 64 GB 2Rx4 PC5-4800B-R)  
 Storage: 1 x 1.6 TB PCIe NVMe SSD  
 Other: None

### Software

OS: SUSE Linux Enterprise Server 15 SP4 (x86\_64)  
 Kernel 5.14.21-150400.22-default  
 Compiler: C/C++/Fortran: Version 4.0.0 of AOCC  
 Parallel: Yes  
 Firmware: Version 0901 released May-2023  
 File System: xfs  
 System State: Run level 3 (multi-user)  
 Base Pointers: 64-bit  
 Peak Pointers: 64-bit  
 Other: None  
 Power Management: BIOS and OS set to prefer performance at the cost of additional power usage.



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## Results Table

Benchmark	Base							Peak						
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
600.perlbench_s	64	211	8.41	212	8.38	<u>211</u>	<u>8.40</u>	1	211	8.43	211	8.42	<u>211</u>	<u>8.43</u>
602.gcc_s	64	<u>275</u>	<u>14.5</u>	275	14.5	276	14.4	64	<u>275</u>	<u>14.5</u>	275	14.5	276	14.4
605.mcf_s	64	232	20.3	<u>232</u>	<u>20.3</u>	232	20.3	1	224	21.1	224	21.1	<u>224</u>	<u>21.1</u>
620.omnetpp_s	64	<u>155</u>	<u>10.5</u>	154	10.6	156	10.4	64	<u>155</u>	<u>10.5</u>	154	10.6	156	10.4
623.xalancbmk_s	64	<u>75.1</u>	<u>18.9</u>	74.9	18.9	75.7	18.7	1	<u>68.8</u>	<u>20.6</u>	69.1	20.5	68.7	20.6
625.x264_s	64	82.4	21.4	82.6	21.3	<u>82.6</u>	<u>21.3</u>	64	82.4	21.4	82.6	21.3	<u>82.6</u>	<u>21.3</u>
631.deepsjeng_s	64	203	7.07	204	7.03	<u>203</u>	<u>7.07</u>	64	203	7.07	204	7.03	<u>203</u>	<u>7.07</u>
641.leela_s	64	292	5.84	<u>292</u>	<u>5.84</u>	293	5.83	64	292	5.84	<u>292</u>	<u>5.84</u>	293	5.83
648.exchange2_s	64	113	26.0	<u>113</u>	<u>26.0</u>	113	25.9	64	113	26.0	<u>113</u>	<u>26.0</u>	113	25.9
657.xz_s	64	238	26.0	238	26.0	<u>238</u>	<u>26.0</u>	128	<u>234</u>	<u>26.4</u>	235	26.3	233	26.6

SPECspeed®2017\_int\_base = **14.0**

SPECspeed®2017\_int\_peak = **14.2**

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
OS set to performance mode via cpupower frequency-set -g performance
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.

To enable Transparent Hugepages (THP) for all allocations,
'echo always > /sys/kernel/mm/transparent_hugepage/enabled' and
'echo always > /sys/kernel/mm/transparent_hugepage/defrag' run as root.
```



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## Environment Variables Notes

Environment variables set by runcpu before the start of the run:

```
GOMP_CPU_AFFINITY = "0-127"
LD_LIBRARY_PATH = "/cpull9/amd_speed_aocc400_genoa_B_lib/lib:"
LIBOMP_NUM_HIDDEN_HELPER_THREADS = "0"
MALLOC_CONF = "oversize_threshold:0,retain:true"
OMP_DYNAMIC = "false"
OMP_SCHEDULE = "static"
OMP_STACKSIZE = "128M"
OMP_THREAD_LIMIT = "128"
```

Environment variables set by runcpu during the 600.perlbench\_s peak run:

```
GOMP_CPU_AFFINITY = "15"
```

Environment variables set by runcpu during the 605.mcf\_s peak run:

```
GOMP_CPU_AFFINITY = "15"
```

Environment variables set by runcpu during the 623.xalancbmk\_s peak run:

```
GOMP_CPU_AFFINITY = "15"
```

Environment variables set by runcpu during the 657.xz\_s peak run:

```
GOMP_CPU_AFFINITY = "0-127"
LIBOMP_NUM_HIDDEN_HELPER_THREADS = "8"
```

## 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:

```
SR-IOV Support = Disabled
SVM Mode = Disabled
NUMA nodes per socket = NPS4
Determinism Control = Manual
Determinism Enable = Power
Engine Boost = Aggressive
TDP Control = Manual
TDP = 300
PPT Control = Manual
PPT = 300
IOMMU = Disabled
BMC Configuration:
Fan mode = Full speed mode
```

```
Sysinfo program /cpull9/bin/sysinfo
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
running on localhost Fri Jul 21 12:22:07 2023
```

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

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## Platform Notes (Continued)

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- 8. numactl --hardware
- 9. /proc/meminfo
- 10. who -r
- 11. Systemd service manager version: systemd 249 (249.11+suse.124.g2bc0b2c447)
- 12. Services, from systemctl list-unit-files
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- 20. Disk information
- 21. /sys/devices/virtual/dmi/id
- 22. dmidecode
- 23. BIOS

```
1. uname -a
Linux localhost 5.14.21-150400.22-default #1 SMP PREEMPT_DYNAMIC Wed May 11 06:57:18 UTC 2022 (49db222)
x86_64 x86_64 x86_64 GNU/Linux
```

```
2. w
12:22:07 up 3:47, 1 user, load average: 5.15, 5.95, 3.63
USER      TTY      FROM          LOGIN@      IDLE        JCPU        PCPU        WHAT
root      tty1    -              09:01       3:20m      1.11s      0.08s      /bin/bash ./amd_speed_aocc400_genoa_B1.sh
```

```
3. Username
From environment variable $USER: root
```

```
4. ulimit -a
core file size          (blocks, -c) unlimited
data seg size           (kbytes, -d) unlimited
scheduling priority     (-e) 0
file size               (blocks, -f) unlimited
pending signals         (-i) 3094608
max locked memory       (kbytes, -l) 2097152
max memory size         (kbytes, -m) unlimited
open files              (-n) 1024
pipe size               (512 bytes, -p) 8
POSIX message queues    (bytes, -q) 819200
real-time priority      (-r) 0
stack size              (kbytes, -s) unlimited
cpu time                (seconds, -t) unlimited
max user processes      (-u) 3094608
```

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### Platform Notes (Continued)

virtual memory (kbytes, -v) unlimited  
file locks (-x) unlimited

```

5. sysinfo process ancestry
/usr/lib/systemd/systemd --switched-root --system --deserialize 30
login -- root
-bash
/bin/bash ./speed.sh
python3 ./run_amd_speed_aocc400_genoa_B1.py
/bin/bash ./amd_speed_aocc400_genoa_B1.sh
runcpu --config amd_speed_aocc400_genoa_B1.cfg --tune all --reportable --iterations 3 intspeed
runcpu --configfile amd_speed_aocc400_genoa_B1.cfg --tune all --reportable --iterations 3 --nopower
--runmode speed --tune base:peak --size test:train:refspeed intspeed --nopreenv --note-preenv --logfile
$SPEC/tmp/CPU2017.485/temlogs/preenv.intspeed.485.0.log --lognum 485.0 --from_runcpu 2
specperl $SPEC/bin/sysinfo
$SPEC = /cpull9

```

```

6. /proc/cpuinfo
model name      : AMD EPYC 9534 64-Core Processor
vendor_id      : AuthenticAMD
cpu family     : 25
model          : 17
stepping       : 1
microcode      : 0xa101116
bugs           : sysret_ss_attrs spectre_v1 spectre_v2 spec_store_bypass
TLB size      : 3584 4K pages
cpu cores     : 64
siblings      : 128
1 physical ids (chips)
128 processors (hardware threads)
physical id 0: core ids 0-63
physical id 0: apicids 0-127
Caution: /proc/cpuinfo data regarding chips, cores, and threads is not necessarily reliable, especially for
virtualized systems. Use the above data carefully.

```

```

7. lscpu

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):           128
On-line CPU(s) list: 0-127
Vendor ID:        AuthenticAMD
Model name:       AMD EPYC 9534 64-Core Processor
CPU family:       25
Model:            17
Thread(s) per core: 2
Core(s) per socket: 64
Socket(s):        1
Stepping:         1
Frequency boost:  enabled
CPU max MHz:      3718.0659
CPU min MHz:      1500.0000
BogoMIPS:         4892.86
Flags:             fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov pat pse36

```

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### Platform Notes (Continued)

```

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
xsaves xgetbv1 xsaves cqm_llc cqm_occup_llc cqm_mbm_total cqm_mbm_local
avx512_bf16 clzero irperf xsaveerptr rdpru wbnoinvd amd_ppin arat npt lbrv
svm_lock nrp_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 la57 rdpid overflow_recov succor smca fsrm flush_lld
AMD-V

```

#### Virtualization:

```

L1d cache: 2 MiB (64 instances)
L1i cache: 2 MiB (64 instances)
L2 cache: 64 MiB (64 instances)
L3 cache: 256 MiB (8 instances)
NUMA node(s): 4
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
Vulnerability Itlb multihit: Not affected
Vulnerability L1tf: Not affected
Vulnerability Mds: Not affected
Vulnerability Meltdown: 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 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	2M	8	Data	1	64	1	64
L1i	32K	2M	8	Instruction	1	64	1	64
L2	1M	64M	8	Unified	2	2048	1	64
L3	32M	256M	16	Unified	3	32768	1	64

#### 8. numactl --hardware

NOTE: a numactl 'node' might or might not correspond to a physical chip.

```

available: 4 nodes (0-3)
node 0 cpus: 0-15,64-79
node 0 size: 193238 MB
node 0 free: 191908 MB
node 1 cpus: 16-31,80-95
node 1 size: 193519 MB
node 1 free: 192984 MB
node 2 cpus: 32-47,96-111
node 2 size: 193519 MB
node 2 free: 193053 MB
node 3 cpus: 48-63,112-127
node 3 size: 193398 MB
node 3 free: 193114 MB
node distances:

```

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### Platform Notes (Continued)

```

node    0    1    2    3
0:     10   12   12   12
1:     12   10   12   12
2:     12   12   10   12
3:     12   12   12   10

```

```

-----
9. /proc/meminfo
   MemTotal:      792245016 kB

```

```

-----
10. who -r
    run-level 3 Jul 21 08:35

```

```

-----
11. Systemd service manager version: systemd 249 (249.11+suse.124.g2bc0b2c447)
    Default Target Status
    multi-user      running

```

```

-----
12. Services, from systemctl list-unit-files
STATE                               UNIT FILES
enabled                             YaST2-Firstboot YaST2-Second-Stage apparmor auditd cron display-manager getty@ haveged
irqbalance issue-generator kbdsettings klog lvm2-monitor nscd nvme-fc-boot-connections
postfix purge-kernels rollback rsyslog smartd sshd wicked wickedd-auto4 wickedd-dhcp4
wickedd-dhcp6 wickedd-nanny
enabled-runtime                      systemd-remount-fs
disabled                             autofs autoyast-initscripts blk-availability boot-sysctl ca-certificates chrony-wait
chronyd console-getty cups cups-browsed debug-shell ebttables exchange-bmc-os-info
firewalld gpm grub2-once haveged-switch-root ipmi ipmievdev issue-add-ssh-keys kexec-load
lunmask man-db-create multipathd nfs nfs-blkmap nvme-autoconnect rdisc rpcbind
rpmconfigcheck rsyncd serial-getty@ smartd-generate_opts snmpd snmptrapd svnservice
systemd-boot-check-no-failures systemd-network-generator systemd-sysext
systemd-time-wait-sync systemd-timesyncd tuned udisks2
indirect                             wickedd

```

```

-----
13. Linux kernel boot-time arguments, from /proc/cmdline
BOOT_IMAGE=/boot/vmlinuz-5.14.21-150400.22-default
root=UUID=9bcf0374-b29f-4a4c-932e-9c0e90fb0803
splash=silent
mitigations=auto
quiet

```

```

-----
14. cpupower frequency-info
analyzing CPU 0:
  current policy: frequency should be within 1.50 GHz and 2.45 GHz.
                  The governor "performance" may decide which speed to use
                  within this range.

  boost state support:
    Supported: yes
    Active: yes

```

```

-----
15. tuned-adm active
It seems that tuned daemon is not running, preset profile is not activated.
Preset profile: throughput-performance

```

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### Platform Notes (Continued)

#### 16. sysctl

```

kernel.numa_balancing      1
kernel.randomize_va_space  0
vm.compaction_proactiveness 20
vm.dirty_background_bytes  0
vm.dirty_background_ratio  10
vm.dirty_bytes             0
vm.dirty_expire_centisecs  3000
vm.dirty_ratio             8
vm.dirty_writeback_centisecs 500
vm.dirtytime_expire_seconds 43200
vm.extfrag_threshold       500
vm.min_unmapped_ratio      1
vm.nr_hugepages            0
vm.nr_hugepages_mempolicy  0
vm.nr_overcommit_hugepages 0
vm.swappiness              1
vm.watermark_boost_factor  15000
vm.watermark_scale_factor  10
vm.zone_reclaim_mode       1

```

#### 17. /sys/kernel/mm/transparent\_hugepage

```

defrag      [always] defer defer+madvise madvise never
enabled     [always] madvise never
hpage_pmd_size 2097152
shmem_enabled always within_size advise [never] deny force

```

#### 18. /sys/kernel/mm/transparent\_hugepage/khugepaged

```

alloc_sleep_millisecs  60000
defrag                 1
max_ptes_none          511
max_ptes_shared        256
max_ptes_swap          64
pages_to_scan          4096
scan_sleep_millisecs  10000

```

#### 19. OS release

```

From /etc/*-release /etc/*-version
os-release SUSE Linux Enterprise Server 15 SP4

```

#### 20. Disk information

SPEC is set to: /cpul19

```

Filesystem Type Size Used Avail Use% Mounted on
/dev/nvme0n1p8 xfs 500G 230G 271G 46% /

```

#### 21. /sys/devices/virtual/dmi/id

```

Vendor:      ASUSTeK COMPUTER INC.
Product:     RS520A-E12-RS12U
Product Family: Server
Serial:      123456789012

```

#### 22. dmidecode

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

(Continued on next page)





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### Platform Notes (Continued)

determined", but the intent may not be met, as there are frequent changes to hardware, firmware, and the "DMTF SMBIOS" standard.

Memory:

12x Samsung M321R8GA0BB0-CQKVG 64 GB 2 rank 4800

#### 23. BIOS

(This section combines info from /sys/devices and dmidecode.)

BIOS Vendor: American Megatrends Inc.  
BIOS Version: 0901  
BIOS Date: 05/04/2023  
BIOS Revision: 9.1

### Compiler Version Notes

C | 600.perlbench\_s(base, peak) 602.gcc\_s(base, peak) 605.mcf\_s(base, peak) 625.x264\_s(base, peak)  
| 657.xz\_s(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++ | 620.omnetpp\_s(base, peak) 623.xalancbmk\_s(base, peak) 631.deepsjeng\_s(base, peak)  
| 641.leela\_s(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

Fortran | 648.exchange2\_s(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++

(Continued on next page)



# SPEC CPU®2017 Integer Speed Result

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**ASUSTeK Computer Inc.**

ASUS RS520A-E12-RS12U  
(2.45 GHz, AMD EPYC 9534)

SPECspeed®2017\_int\_base = 14.0

SPECspeed®2017\_int\_peak = 14.2

CPU2017 License: 9016

Test Sponsor: ASUSTeK Computer Inc.

Tested by: ASUSTeK Computer Inc.

Test Date: Jul-2023

Hardware Availability: Nov-2022

Software Availability: Nov-2022

## Base Compiler Invocation (Continued)

Fortran benchmarks:

flang

## Base Portability Flags

```
600.perlbench_s: -DSPEC_LINUX_X64 -DSPEC_LP64
602.gcc_s: -DSPEC_LP64
605.mcf_s: -DSPEC_LP64
620.omnetpp_s: -DSPEC_LP64
623.xalancbmk_s: -DSPEC_LINUX -DSPEC_LP64
625.x264_s: -DSPEC_LP64
631.deepsjeng_s: -DSPEC_LP64
641.leela_s: -DSPEC_LP64
648.exchange2_s: -DSPEC_LP64
657.xz_s: -DSPEC_LP64
```

## Base Optimization Flags

C benchmarks:

```
-m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-allow-multiple-definition -O3 -march=znver4 -fveclib=AMDLIBM
-ffast-math -fopenmp -flto -fstruct-layout=7
-mllvm -unroll-threshold=50 -mllvm -inline-threshold=1000
-fremap-arrays -fstrip-mining -mllvm -reduce-array-computations=3
-DSPEC_OPENMP -zopt -fopenmp=libomp -lomp -lamdlibm -lflang
-lamdalloc
```

C++ benchmarks:

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

Fortran benchmarks:

```
-m64 -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
```

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SPECspeed®2017\_int\_peak = 14.2

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**Test Date:** Jul-2023

**Hardware Availability:** Nov-2022

**Software Availability:** Nov-2022

## Base Optimization Flags (Continued)

Fortran benchmarks (continued):

```
-Wl,-mllvm -Wl,-enable-iv-split -O3 -march=znver4 -fveclib=AMDLIBM
-ffast-math -fopenmp -flto -mllvm -optimize-strided-mem-cost
-mllvm -unroll-aggressive -mllvm -unroll-threshold=150 -fopenmp=libomp
-lomp -lamdlibm -lflang -lamdalloc
```

## Base Other Flags

C benchmarks:

```
-Wno-return-type -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

Same as Base Portability Flags

## Peak Optimization Flags

C benchmarks:

(Continued on next page)



# SPEC CPU®2017 Integer Speed Result

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## ASUSTeK Computer Inc.

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SPECspeed®2017\_int\_base = 14.0

SPECspeed®2017\_int\_peak = 14.2

CPU2017 License: 9016

Test Sponsor: ASUSTeK Computer Inc.

Tested by: ASUSTeK Computer Inc.

Test Date: Jul-2023

Hardware Availability: Nov-2022

Software Availability: Nov-2022

## Peak Optimization Flags (Continued)

```
600.perlbench_s: -m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-allow-multiple-definition -Ofast -march=znver4
-fveclib=AMDLIBM -ffast-math -fopenmp -flto
-fstruct-layout=9 -mllvm -unroll-threshold=50
-fremap-arrays -fstrip-mining
-mllvm -inline-threshold=1000
-mllvm -reduce-array-computations=3 -DSPEC_OPENMP -zopt
-fopenmp=libomp -lomp -lamdlibm -lamdalloc -lflang
```

602.gcc\_s: basepeak = yes

605.mcf\_s: Same as 600.perlbench\_s

625.x264\_s: basepeak = yes

657.xz\_s: Same as 600.perlbench\_s

C++ benchmarks:

620.omnetpp\_s: basepeak = yes

```
623.xalancbmk_s: -m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-do-block-reorder=aggressive -Ofast
-march=znver4 -fveclib=AMDLIBM -ffast-math -fopenmp
-flto -finline-aggressive -mllvm -unroll-threshold=100
-mllvm -reduce-array-computations=3 -DSPEC_OPENMP -zopt
-mllvm -do-block-reorder=aggressive
-fvirtual-function-elimination -fvisibility=hidden
-fopenmp=libomp -lomp -lamdlibm -lamdalloc-ext -lflang
```

631.deepsjeng\_s: basepeak = yes

641.leela\_s: basepeak = yes

Fortran benchmarks:

648.exchange2\_s: basepeak = yes

## Peak Other Flags

C benchmarks:

-Wno-return-type -Wno-unused-command-line-argument

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**Software Availability:** Nov-2022

## Peak Other Flags (Continued)

C++ benchmarks:

-Wno-unused-command-line-argument

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/ASUSTekPlatform-Settings-AMD-K14-V1.4.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/ASUSTekPlatform-Settings-AMD-K14-V1.4.xml>

<http://www.spec.org/cpu2017/flags/aocc400-flags.xml>

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