



SPEC CPU®2017 Integer Speed Result

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IEIT Systems Co., Ltd. NF5280A7 (AMD EPYC 9654)

SPECspeed®2017_int_base = 13.9

SPECspeed®2017_int_peak = 14.1

CPU2017 License: 3358

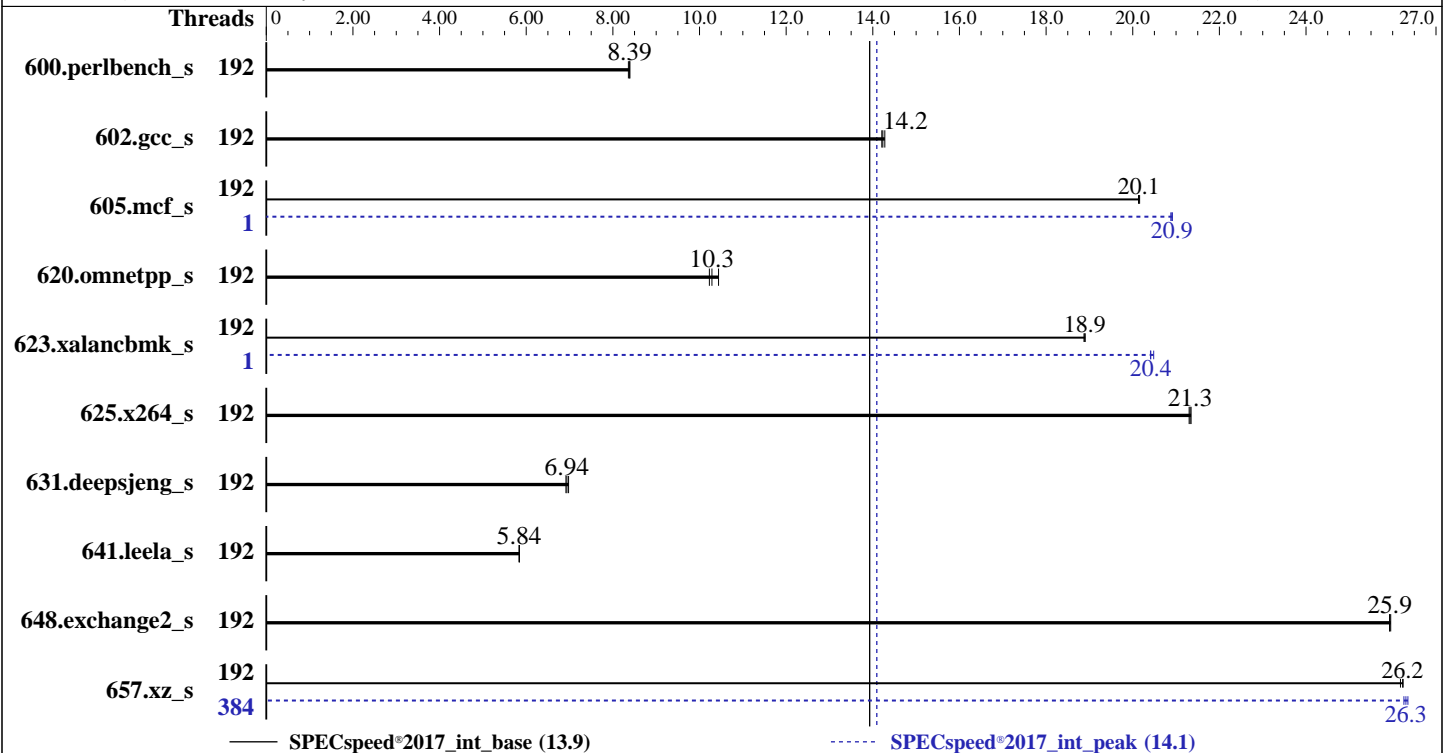
Test Sponsor: IEIT Systems Co., Ltd.

Tested by: IEIT Systems Co., Ltd.

Test Date: Nov-2023

Hardware Availability: Sep-2023

Software Availability: Nov-2022



Hardware

CPU Name: AMD EPYC 9654
 Max MHz: 3700
 Nominal: 2400
 Enabled: 192 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: 384 MB I+D on chip per chip, 32 MB shared / 8 cores
 Other: None
 Memory: 1536 GB (24 x 64 GB 2Rx4 PC5-4800B-R)
 Storage: 1 x 1.92 TB NVME SSD
 Other: None

Software

OS: Red Hat Enterprise Linux 9.0 (Plow)
 5.14.0-70.22.1.el9_0.x86_64
 Compiler: C/C++/Fortran: Version 4.0.0 of AOCC
 Parallel: Yes
 Firmware: Version 04.02.19 released Mar-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	192	212	8.39	212	8.36	212	8.39	192	212	8.39	212	8.36	212	8.39
602.gcc_s	192	280	14.2	280	14.2	279	14.3	192	280	14.2	280	14.2	279	14.3
605.mcf_s	192	234	20.2	234	20.1	234	20.1	1	226	20.9	226	20.9	226	20.9
620.omnetpp_s	192	156	10.4	159	10.3	159	10.2	192	156	10.4	159	10.3	159	10.2
623.xalancbmk_s	192	75.0	18.9	75.0	18.9	75.1	18.9	1	69.4	20.4	69.4	20.4	69.2	20.5
625.x264_s	192	82.6	21.3	82.7	21.3	82.8	21.3	192	82.6	21.3	82.7	21.3	82.8	21.3
631.deepsjeng_s	192	207	6.92	206	6.94	205	6.98	192	207	6.92	206	6.94	205	6.98
641.leela_s	192	292	5.84	292	5.84	292	5.84	192	292	5.84	292	5.84	292	5.84
648.exchange2_s	192	113	25.9	113	25.9	113	26.0	192	113	25.9	113	25.9	113	26.0
657.xz_s	192	236	26.2	236	26.2	236	26.2	384	235	26.3	235	26.4	235	26.3

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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.

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 = "0-383"
LD_LIBRARY_PATH = "/home/cpu2017/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 = "384"
```

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 = "0-383"
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:

```
SVM Mode = disable
DRAM Scrub time = disable
NUMA nodes per socket = NPS4
Determinism Slider = Power
cTDP = 400
Package Power Limit = 400
```

```
Sysinfo program /home/cpu2017/bin/sysinfo
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
running on localhost Fri Nov 10 09:22:13 2023
```

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

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1. uname -a
2. w
3. Username
4. ulimit -a
5. sysinfo process ancestry
6. /proc/cpuinfo

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Platform Notes (Continued)

```

7. lscpu
8. numactl --hardware
9. /proc/meminfo
10. who -r
11. Systemd service manager version: systemd 250 (250-6.el9_0)
12. Services, from systemctl list-unit-files
13. Linux kernel boot-time arguments, from /proc/cmdline
14. cpupower frequency-info
15. tuned-adm active
16. sysctl
17. /sys/kernel/mm/transparent_hugepage
18. /sys/kernel/mm/transparent_hugepage/khugepaged
19. OS release
20. Disk information
21. /sys/devices/virtual/dmi/id
22. dmidecode
23. BIOS

```

```

-----
1. uname -a
Linux localhost 5.14.0-70.22.1.el9_0.x86_64 #1 SMP PREEMPT Tue Aug 2 10:02:12 EDT 2022 x86_64 x86_64 x86_64
GNU/Linux

```

```

-----
2. w
 09:22:13 up 6 min,  1 user,  load average: 0.16, 0.17, 0.10
USER      TTY      LOGIN@   IDLE   JCPU   PCPU   WHAT
root     tty1      09:19    13.00s  1.58s  0.41s /bin/bash ./amd_speed_aocc400_genoa_B1.sh

```

```

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

```

```

-----
4. ulimit -a
real-time non-blocking time (microseconds, -R) unlimited
core file size              (blocks, -c) 0
data seg size               (kbytes, -d) unlimited
scheduling priority         (-e) 0
file size                   (blocks, -f) unlimited
pending signals             (-i) 6191046
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) 6191046
virtual memory              (kbytes, -v) unlimited
file locks                  (-x) unlimited

```

```

-----
5. sysinfo process ancestry
/usr/lib/systemd/systemd --switched-root --system --deserialize 18
login -- root
-bash
python3 ./run_amd_speed_aocc400_genoa_B1.py

```

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Platform Notes (Continued)

```
/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/CPU2017.014/templogs/preenv.intspeed.014.0.log --lognum 014.0 --from_runcpu 2
specperl $SPEC/bin/sysinfo
$SPEC = /home/cpu2017
```

```
-----
6. /proc/cpuinfo
model name      : AMD EPYC 9654 96-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     : 96
siblings      : 192
2 physical ids (chips)
384 processors (hardware threads)
physical id 0: core ids 0-95
physical id 1: core ids 0-95
physical id 0: apicids 0-191
physical id 1: apicids 256-447
```

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 2.37.4:

```
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):                384
On-line CPU(s) list:   0-383
Vendor ID:              AuthenticAMD
BIOS Vendor ID:       Advanced Micro Devices, Inc.
Model name:            AMD EPYC 9654 96-Core Processor
BIOS Model name:      AMD EPYC 9654 96-Core Processor
CPU family:            25
Model:                 17
Thread(s) per core:    2
Core(s) per socket:    96
Socket(s):             2
Stepping:              1
Frequency boost:       enabled
CPU max MHz:           3707.8120
CPU min MHz:           1500.0000
BogoMIPS:              4800.11
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
```

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Platform Notes (Continued)

invpcid_single hw_pstate ssbd mba ibrs ibpb stibp vmcall 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 arat npt lbrv
svm_lock nrp_save tsc_scale vmcb_clean flushbyasid decodeassists
pausefilter pfthreshold avic v_umsave_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_l1d

Virtualization:

L1d cache: AMD-V
L1i cache: 6 MiB (192 instances)
L2 cache: 6 MiB (192 instances)
L3 cache: 192 MiB (192 instances)
NUMA node(s): 768 MiB (24 instances)
24
NUMA node0 CPU(s): 0-7,192-199
NUMA node1 CPU(s): 8-15,200-207
NUMA node2 CPU(s): 16-23,208-215
NUMA node3 CPU(s): 24-31,216-223
NUMA node4 CPU(s): 32-39,224-231
NUMA node5 CPU(s): 40-47,232-239
NUMA node6 CPU(s): 48-55,240-247
NUMA node7 CPU(s): 56-63,248-255
NUMA node8 CPU(s): 64-71,256-263
NUMA node9 CPU(s): 72-79,264-271
NUMA node10 CPU(s): 80-87,272-279
NUMA node11 CPU(s): 88-95,280-287
NUMA node12 CPU(s): 96-103,288-295
NUMA node13 CPU(s): 104-111,296-303
NUMA node14 CPU(s): 112-119,304-311
NUMA node15 CPU(s): 120-127,312-319
NUMA node16 CPU(s): 128-135,320-327
NUMA node17 CPU(s): 136-143,328-335
NUMA node18 CPU(s): 144-151,336-343
NUMA node19 CPU(s): 152-159,344-351
NUMA node20 CPU(s): 160-167,352-359
NUMA node21 CPU(s): 168-175,360-367
NUMA node22 CPU(s): 176-183,368-375
NUMA node23 CPU(s): 184-191,376-383

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
Vulnerability Spectre v1: Mitigation; usercopy/swaps 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	6M	8	Data	1	64	1	64
L1i	32K	6M	8	Instruction	1	64	1	64
L2	1M	192M	8	Unified	2	2048	1	64
L3	32M	768M	16	Unified	3	32768	1	64

8. numactl --hardware

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

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Platform Notes (Continued)

```

available: 24 nodes (0-23)
node 0 cpus: 0-7,192-199
node 0 size: 64308 MB
node 0 free: 63910 MB
node 1 cpus: 8-15,200-207
node 1 size: 64507 MB
node 1 free: 64120 MB
node 2 cpus: 16-23,208-215
node 2 size: 64507 MB
node 2 free: 64225 MB
node 3 cpus: 24-31,216-223
node 3 size: 64507 MB
node 3 free: 64273 MB
node 4 cpus: 32-39,224-231
node 4 size: 64507 MB
node 4 free: 64229 MB
node 5 cpus: 40-47,232-239
node 5 size: 64507 MB
node 5 free: 64264 MB
node 6 cpus: 48-55,240-247
node 6 size: 64507 MB
node 6 free: 64241 MB
node 7 cpus: 56-63,248-255
node 7 size: 64507 MB
node 7 free: 64217 MB
node 8 cpus: 64-71,256-263
node 8 size: 64507 MB
node 8 free: 64303 MB
node 9 cpus: 72-79,264-271
node 9 size: 64507 MB
node 9 free: 63974 MB
node 10 cpus: 80-87,272-279
node 10 size: 64507 MB
node 10 free: 64210 MB
node 11 cpus: 88-95,280-287
node 11 size: 64507 MB
node 11 free: 64204 MB
node 12 cpus: 96-103,288-295
node 12 size: 64471 MB
node 12 free: 64250 MB
node 13 cpus: 104-111,296-303
node 13 size: 64507 MB
node 13 free: 64242 MB
node 14 cpus: 112-119,304-311
node 14 size: 64507 MB
node 14 free: 64180 MB
node 15 cpus: 120-127,312-319
node 15 size: 64507 MB
node 15 free: 64052 MB
node 16 cpus: 128-135,320-327
node 16 size: 64507 MB
node 16 free: 63911 MB
node 17 cpus: 136-143,328-335
node 17 size: 64507 MB
node 17 free: 63764 MB
node 18 cpus: 144-151,336-343
node 18 size: 64507 MB
node 18 free: 64296 MB
node 19 cpus: 152-159,344-351
node 19 size: 64507 MB

```

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Platform Notes (Continued)

```

node 19 free: 64227 MB
node 20 cpus: 160-167,352-359
node 20 size: 64507 MB
node 20 free: 64228 MB
node 21 cpus: 168-175,360-367
node 21 size: 64507 MB
node 21 free: 64256 MB
node 22 cpus: 176-183,368-375
node 22 size: 64507 MB
node 22 free: 64219 MB
node 23 cpus: 184-191,376-383
node 23 size: 64431 MB
node 23 free: 64138 MB
node distances:
node  0  1  2  3  4  5  6  7  8  9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
0:  10 11 11 12 12 12 12 12 12 12 12 12 12 32 32 32 32 32 32 32 32 32 32 32
1:  11 10 11 12 12 12 12 12 12 12 12 12 12 32 32 32 32 32 32 32 32 32 32 32
2:  11 11 10 12 12 12 12 12 12 12 12 12 12 32 32 32 32 32 32 32 32 32 32 32
3:  12 12 12 10 11 11 12 12 12 12 12 12 12 32 32 32 32 32 32 32 32 32 32 32
4:  12 12 12 11 10 11 12 12 12 12 12 12 12 32 32 32 32 32 32 32 32 32 32 32
5:  12 12 12 11 11 10 12 12 12 12 12 12 12 32 32 32 32 32 32 32 32 32 32 32
6:  12 12 12 12 12 12 10 11 11 12 12 12 12 32 32 32 32 32 32 32 32 32 32 32
7:  12 12 12 12 12 12 11 10 11 12 12 12 12 32 32 32 32 32 32 32 32 32 32 32
8:  12 12 12 12 12 12 11 11 10 12 12 12 12 32 32 32 32 32 32 32 32 32 32 32
9:  12 12 12 12 12 12 12 12 12 10 11 11 32 32 32 32 32 32 32 32 32 32 32 32
10: 12 12 12 12 12 12 12 12 12 11 10 11 32 32 32 32 32 32 32 32 32 32 32 32
11: 12 12 12 12 12 12 12 12 12 11 11 10 32 32 32 32 32 32 32 32 32 32 32 32
12: 32 32 32 32 32 32 32 32 32 32 32 32 10 11 11 12 12 12 12 12 12 12 12 12
13: 32 32 32 32 32 32 32 32 32 32 32 32 11 10 11 12 12 12 12 12 12 12 12 12
14: 32 32 32 32 32 32 32 32 32 32 32 32 11 11 10 12 12 12 12 12 12 12 12 12
15: 32 32 32 32 32 32 32 32 32 32 32 32 12 12 12 10 11 11 12 12 12 12 12 12
16: 32 32 32 32 32 32 32 32 32 32 32 32 12 12 12 11 10 11 12 12 12 12 12 12
17: 32 32 32 32 32 32 32 32 32 32 32 32 12 12 12 11 11 10 12 12 12 12 12 12
18: 32 32 32 32 32 32 32 32 32 32 32 32 12 12 12 12 12 12 10 11 11 12 12 12
19: 32 32 32 32 32 32 32 32 32 32 32 32 12 12 12 12 12 12 11 10 11 12 12 12
20: 32 32 32 32 32 32 32 32 32 32 32 32 12 12 12 12 12 12 11 11 10 12 12 12
21: 32 32 32 32 32 32 32 32 32 32 32 32 12 12 12 12 12 12 12 12 10 11 11 11
22: 32 32 32 32 32 32 32 32 32 32 32 32 12 12 12 12 12 12 12 12 11 10 11 11
23: 32 32 32 32 32 32 32 32 32 32 32 32 12 12 12 12 12 12 12 12 11 11 10 10

```

```

9. /proc/meminfo
MemTotal:      1585014920 kB

```

```

10. who -r
run-level 3 Nov 10 09:15

```

```

11. Systemd service manager version: systemd 250 (250-6.e19_0)
Default Target Status
multi-user      running

```

```

12. Services, from systemctl list-unit-files
STATE UNIT FILES
enabled dbus-broker getty@ lvm2-monitor mdmonitor microcode nis-domainname rhsmcertd tuned udisks2
enabled-runtime systemd-remount-fs
disabled NetworkManager NetworkManager-dispatcher NetworkManager-wait-online auditd
blk-availability chrony-wait chronyd console-getty cpupower crond debug-shell firewalld

```

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Platform Notes (Continued)

```

indirect
      irqbalance kdump kvm_stat man-db-restart-cache-update nftables rdisc rhsm rhsm-facts
      rpmdb-rebuild rsyslog selinux-autorelabel-mark serial-getty@ sshd sshd-keygen@ sssd
      systemd-boot-check-no-failures systemd-network-generator systemd-pstore systemd-sysext
      sssd-autofs sssd-kcm sssd-nss sssd-pac sssd-pam sssd-ssh sssd-sudo

```

```

-----
13. Linux kernel boot-time arguments, from /proc/cmdline
BOOT_IMAGE=(hd0,gpt2)/vmlinuz-5.14.0-70.22.1.el9_0.x86_64
root=/dev/mapper/rhel-root
ro
resume=/dev/mapper/rhel-swap
rd.lvm.lv=rhel/root
rd.lvm.lv=rhel/swap

```

```

-----
14. cpupower frequency-info
analyzing CPU 0:
  current policy: frequency should be within 1.50 GHz and 2.40 GHz.
                   The governor "performance" may decide which speed to use
                   within this range.

  boost state support:
    Supported: yes
    Active: yes
    Boost States: 0
    Total States: 3
    Pstate-P0: 2400MHz

```

```

-----
15. tuned-adm active
  Current active profile: throughput-performance

```

```

-----
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

```

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CPU2017 License: 3358
Test Sponsor: IEIT Systems Co., Ltd.
Tested by: IEIT Systems Co., Ltd.

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

Platform Notes (Continued)

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 Red Hat Enterprise Linux 9.0 (Plow)
redhat-release Red Hat Enterprise Linux release 9.0 (Plow)
system-release Red Hat Enterprise Linux release 9.0 (Plow)

20. Disk information
SPEC is set to: /home/cpu2017
Filesystem Type Size Used Avail Use% Mounted on
/dev/mapper/rhel-home xfs 1.7T 22G 1.7T 2% /home

21. /sys/devices/virtual/dmi/id
Vendor: IEI
Product: NF5280-A7-A0-R0-00
Product Family: Not specified
Serial: 000000000

22. dmidecode
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:
24x Samsung M321R8GA0BB0-CQKZJ 64 GB 2 rank 4800

23. BIOS
(This section combines info from /sys/devices and dmidecode.)
BIOS Vendor: American Megatrends International, LLC.
BIOS Version: 04.02.19
BIOS Date: 03/27/2023

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

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Compiler Version Notes (Continued)

```
-----
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++

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
```



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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
-freemap-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
-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
```



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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:

600.perlbench_s: basepeak = yes

602.gcc_s: basepeak = yes

605.mcf_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

625.x264_s: basepeak = yes

657.xz_s: Same as 605.mcf_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

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Peak Optimization Flags (Continued)

623.xalancbmk_s (continued):

```
-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
```

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/aocc400-flags.html>

<http://www.spec.org/cpu2017/flags/Inspur-Platform-Settings-amd-V3.1.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/Inspur-Platform-Settings-amd-V3.1.xml>

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