



# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Inspur Electronic Information Industry Co., Ltd.  
(IEI)

SPECrate®2017\_int\_base = 1120

NF5280A7 (AMD EPYC 9474F)

SPECrate®2017\_int\_peak = 1170

CPU2017 License: 3358

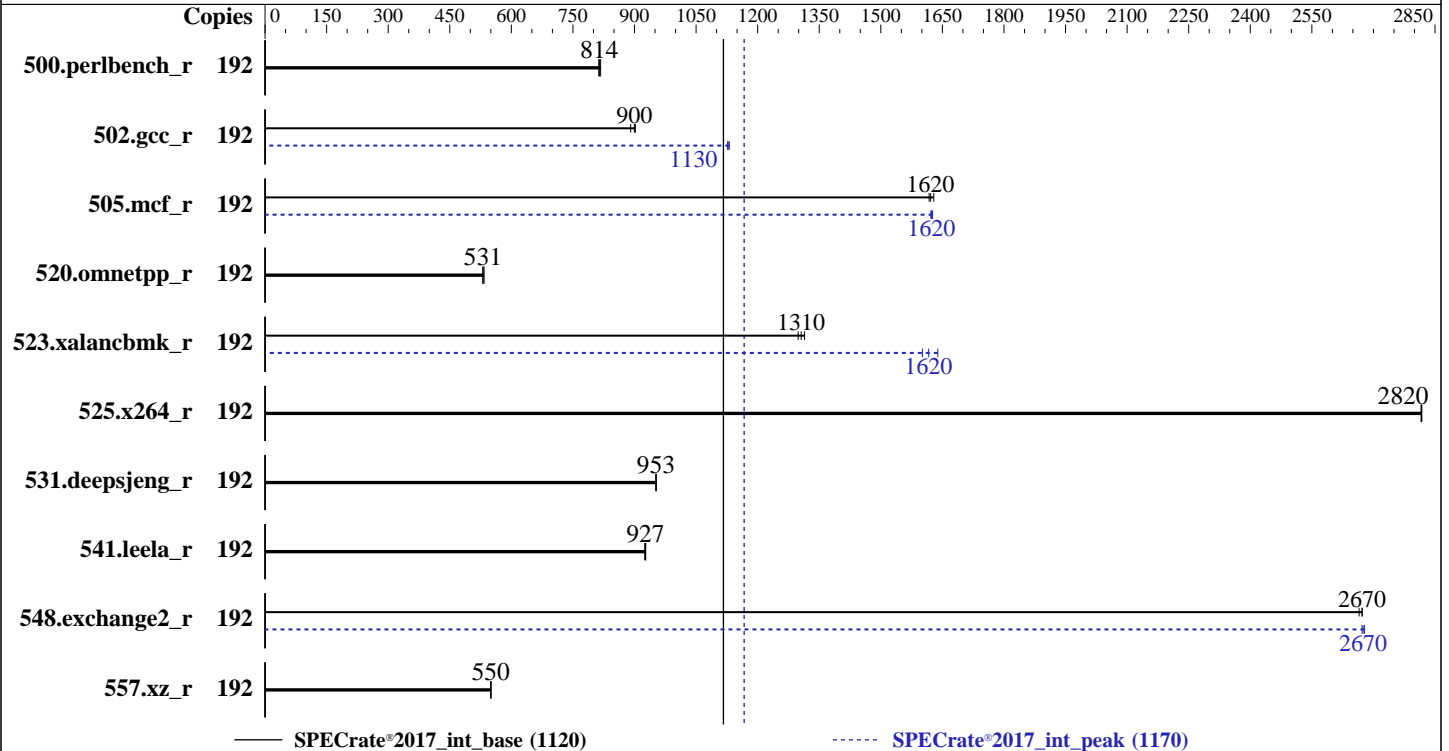
Test Date: May-2023

Test Sponsor: Inspur Electronic Information Industry Co., Ltd. (IEI)

Hardware Availability: Feb-2023

Tested by: Inspur Electronic Information Industry Co., Ltd. (IEI)

Software Availability: Nov-2022



## Hardware

CPU Name: AMD EPYC 9474F  
 Max MHz: 4100  
 Nominal: 3600  
 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: 1536 GB (24 x 64 GB 2Rx4 PC5-4800B-R)  
 Storage: 1 x 1 TB NVME SSD  
 Other: None

## Software

OS: Red Hat Enterprise Linux release 9 (Plow)  
 5.14.0-70.13.1.el9\_0.x86\_64  
 Compiler: C/C++/Fortran: Version 4.0.0 of AOCC  
 Parallel: No  
 Firmware: Version 04.02.14 released Dec-2022  
 File System: xfs  
 System State: Run level 3 (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 2017-2023 Standard Performance Evaluation Corporation

Inspur Electronic Information Industry Co., Ltd.  
(IEI)

SPECrate®2017\_int\_base = 1120

NF5280A7 (AMD EPYC 9474F)

SPECrate®2017\_int\_peak = 1170

CPU2017 License: 3358

Test Date: May-2023

Test Sponsor: Inspur Electronic Information Industry Co., Ltd. (IEI)

Hardware Availability: Feb-2023

Tested by: Inspur Electronic Information Industry Co., Ltd. (IEI)

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	192	<b>375</b>	<b>814</b>	376	813	374	817	192	<b>375</b>	<b>814</b>	376	813	374	817
502.gcc_r	192	<b>302</b>	<b>900</b>	301	902	305	891	192	240	1130	<b>241</b>	<b>1130</b>	241	1130
505.mcf_r	192	<b>191</b>	<b>1620</b>	192	1620	190	1630	192	191	1620	191	1630	<b>191</b>	<b>1620</b>
520.omnetpp_r	192	475	530	<b>474</b>	<b>531</b>	472	534	192	475	530	<b>474</b>	<b>531</b>	472	534
523.xalancbmk_r	192	154	1310	<b>155</b>	<b>1310</b>	156	1300	192	124	1640	127	1600	<b>125</b>	<b>1620</b>
525.x264_r	192	119	2820	<b>119</b>	<b>2820</b>	119	2820	192	119	2820	<b>119</b>	<b>2820</b>	119	2820
531.deepsjeng_r	192	231	953	231	952	<b>231</b>	<b>953</b>	192	231	953	231	952	<b>231</b>	<b>953</b>
541.leela_r	192	344	925	343	927	<b>343</b>	<b>927</b>	192	344	925	343	927	<b>343</b>	<b>927</b>
548.exchange2_r	192	188	2670	189	2670	<b>188</b>	<b>2670</b>	192	188	2670	<b>188</b>	<b>2670</b>	188	2680
557.xz_r	192	377	550	377	550	<b>377</b>	<b>550</b>	192	377	550	377	550	<b>377</b>	<b>550</b>

SPECrate®2017\_int\_base = 1120

SPECrate®2017\_int\_peak = 1170

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) 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.



# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Inspur Electronic Information Industry Co., Ltd.  
(IEI)

SPECrate®2017\_int\_base = 1120

NF5280A7 (AMD EPYC 9474F)

SPECrate®2017\_int\_peak = 1170

**CPU2017 License:** 3358

**Test Date:** May-2023

**Test Sponsor:** Inspur Electronic Information Industry Co., Ltd. (IEI)

**Hardware Availability:** Feb-2023

**Tested by:** Inspur Electronic Information Industry Co., Ltd. (IEI)

**Software Availability:** Nov-2022

## Environment Variables Notes

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

```
LD_LIBRARY_PATH =
"/home/CPU2017/amd_rate_aocc400_genoa_B_lib/lib:/home/CPU2017/amd_rate_aocc400_genoa_B_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:

```
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.localdomain Tue May 9 12:33:10 2023
```

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

-----  
Table of contents  
-----

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

(Continued on next page)



# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Inspur Electronic Information Industry Co., Ltd.  
(IEI)

SPECrate®2017\_int\_base = 1120

NF5280A7 (AMD EPYC 9474F)

SPECrate®2017\_int\_peak = 1170

CPU2017 License: 3358

Test Date: May-2023

Test Sponsor: Inspur Electronic Information Industry Co., Ltd. (IEI)

Hardware Availability: Feb-2023

Tested by: Inspur Electronic Information Industry Co., Ltd. (IEI)

Software Availability: Nov-2022

## Platform Notes (Continued)

- 19. OS release
- 20. Disk information
- 21. /sys/devices/virtual/dmi/id
- 22. dmidecode
- 23. BIOS

```
1. uname -a
Linux localhost.localdomain 5.14.0-70.13.1.el9_0.x86_64 #1 SMP PREEMPT Thu Apr 14 12:42:38 EDT 2022 x86_64
x86_64 x86_64 GNU/Linux
```

```
2. w
12:33:10 up 15 min, 2 users, load average: 0.39, 0.10, 0.08
USER      TTY      LOGIN@  IDLE   JCPU   PCPU   WHAT
root     tty1      12:32   14.00s  1.17s  0.15s  /bin/bash ./amd_rate_aocc400_genoa_B1.sh
root     tty2      12:33   3.00s   0.00s  0.00s  -bash
```

```
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) 6191133
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) 6191133
virtual memory               (kbytes, -v) unlimited
file locks                   (-x) unlimited
```

```
5. sysinfo process ancestry
/usr/lib/systemd/systemd --switched-root --system --deserialize 28
login -- root
-bash
python3 ./run_amd_rate_aocc400_genoa_B1.py
/bin/bash ./amd_rate_aocc400_genoa_B1.sh
runcpu --config amd_rate_aocc400_genoa_B1.cfg --tune all --reportable --iterations 3 intrate
runcpu --configfile amd_rate_aocc400_genoa_B1.cfg --tune all --reportable --iterations 3 --nopower --runmode
rate --tune base:peak --size test:train:refrate intrate --nopreenv --note-preenv --logfile
$SPEC/tmp/CPU2017.001/templogs/preenv.intrate.001.0.log --lognum 001.0 --from_runcpu 2
specperl $SPEC/bin/sysinfo
$SPEC = /home/CPU2017
```

```
6. /proc/cpuinfo
model name      : AMD EPYC 9474F 48-Core Processor
```

(Continued on next page)



# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Inspur Electronic Information Industry Co., Ltd.  
(IEI)

SPECrate®2017\_int\_base = 1120

NF5280A7 (AMD EPYC 9474F)

SPECrate®2017\_int\_peak = 1170

CPU2017 License: 3358

Test Date: May-2023

Test Sponsor: Inspur Electronic Information Industry Co., Ltd. (IEI)

Hardware Availability: Feb-2023

Tested by: Inspur Electronic Information Industry Co., Ltd. (IEI)

Software Availability: Nov-2022

## Platform Notes (Continued)

```

vendor_id      : AuthenticAMD
cpu family    : 25
model         : 17
stepping      : 1
microcode     : 0xa101111
bugs          : sysret_ss_attrs spectre_v1 spectre_v2 spec_store_bypass
TLB size     : 3584 4K pages
cpu cores     : 48
siblings      : 96
2 physical ids (chips)
192 processors (hardware threads)
physical id 0: core ids 0-5,8-13,16-21,24-29,32-37,40-45,48-53,56-61
physical id 1: core ids 0-5,8-13,16-21,24-29,32-37,40-45,48-53,56-61
physical id 0: apicids 0-11,16-27,32-43,48-59,64-75,80-91,96-107,112-123
physical id 1: apicids 128-139,144-155,160-171,176-187,192-203,208-219,224-235,240-251

```

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):                192
On-line CPU(s) list:  0-191
Vendor ID:             AuthenticAMD
BIOS Vendor ID:       Advanced Micro Devices, Inc.
Model name:            AMD EPYC 9474F 48-Core Processor
BIOS Model name:      AMD EPYC 9474F 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:           4113.2808
CPU min MHz:           1500.0000
BogoMIPS:              7199.83
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 pdpelgb rdtscp lm
                        constant_tsc rep_good nopl nonstop_tsc cpuid extd_apicid aperfmperf rapl
                        pni pclmulqdq monitor ssse3 fma cxl6 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 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 la57 rdpid overflow_recov succor smca fsrm flush_l1d

Virtualization:        AMD-V
L1d cache:             3 MiB (96 instances)

```

(Continued on next page)



# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Inspur Electronic Information Industry Co., Ltd.  
(IEI)

SPECrate®2017\_int\_base = 1120

NF5280A7 (AMD EPYC 9474F)

SPECrate®2017\_int\_peak = 1170

CPU2017 License: 3358

Test Date: May-2023

Test Sponsor: Inspur Electronic Information Industry Co., Ltd. (IEI)

Hardware Availability: Feb-2023

Tested by: Inspur Electronic Information Industry Co., Ltd. (IEI)

Software Availability: Nov-2022

## Platform Notes (Continued)

```

L1i cache:          3 MiB (96 instances)
L2 cache:          96 MiB (96 instances)
L3 cache:          512 MiB (16 instances)
NUMA node(s):      16
NUMA node0 CPU(s): 0-5,96-101
NUMA node1 CPU(s): 6-11,102-107
NUMA node2 CPU(s): 12-17,108-113
NUMA node3 CPU(s): 18-23,114-119
NUMA node4 CPU(s): 24-29,120-125
NUMA node5 CPU(s): 30-35,126-131
NUMA node6 CPU(s): 36-41,132-137
NUMA node7 CPU(s): 42-47,138-143
NUMA node8 CPU(s): 48-53,144-149
NUMA node9 CPU(s): 54-59,150-155
NUMA node10 CPU(s): 60-65,156-161
NUMA node11 CPU(s): 66-71,162-167
NUMA node12 CPU(s): 72-77,168-173
NUMA node13 CPU(s): 78-83,174-179
NUMA node14 CPU(s): 84-89,180-185
NUMA node15 CPU(s): 90-95,186-191
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	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

8. numactl --hardware

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

```

available: 16 nodes (0-15)
node 0 cpus: 0-5,96-101
node 0 size: 96578 MB
node 0 free: 96179 MB
node 1 cpus: 6-11,102-107
node 1 size: 96761 MB
node 1 free: 96420 MB
node 2 cpus: 12-17,108-113
node 2 size: 96761 MB
node 2 free: 96420 MB
node 3 cpus: 18-23,114-119
node 3 size: 96761 MB
node 3 free: 96414 MB
node 4 cpus: 24-29,120-125
node 4 size: 96761 MB
node 4 free: 96416 MB
node 5 cpus: 30-35,126-131
node 5 size: 96761 MB
node 5 free: 96412 MB

```

(Continued on next page)



# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Inspur Electronic Information Industry Co., Ltd.  
(IEI)

SPECrate®2017\_int\_base = 1120

NF5280A7 (AMD EPYC 9474F)

SPECrate®2017\_int\_peak = 1170

CPU2017 License: 3358

Test Date: May-2023

Test Sponsor: Inspur Electronic Information Industry Co., Ltd. (IEI)

Hardware Availability: Feb-2023

Tested by: Inspur Electronic Information Industry Co., Ltd. (IEI)

Software Availability: Nov-2022

## Platform Notes (Continued)

```

node 6 cpus: 36-41,132-137
node 6 size: 96761 MB
node 6 free: 96412 MB
node 7 cpus: 42-47,138-143
node 7 size: 96761 MB
node 7 free: 96383 MB
node 8 cpus: 48-53,144-149
node 8 size: 96761 MB
node 8 free: 96237 MB
node 9 cpus: 54-59,150-155
node 9 size: 96761 MB
node 9 free: 96183 MB
node 10 cpus: 60-65,156-161
node 10 size: 96761 MB
node 10 free: 96298 MB
node 11 cpus: 66-71,162-167
node 11 size: 96724 MB
node 11 free: 96380 MB
node 12 cpus: 72-77,168-173
node 12 size: 96761 MB
node 12 free: 96427 MB
node 13 cpus: 78-83,174-179
node 13 size: 96761 MB
node 13 free: 96431 MB
node 14 cpus: 84-89,180-185
node 14 size: 96761 MB
node 14 free: 96397 MB
node 15 cpus: 90-95,186-191
node 15 size: 96689 MB
node 15 free: 96346 MB
node distances:
node  0  1  2  3  4  5  6  7  8  9 10 11 12 13 14 15
0:  10 11 12 12 12 12 12 12 32 32 32 32 32 32 32 32
1:  11 10 12 12 12 12 12 12 32 32 32 32 32 32 32 32
2:  12 12 10 11 12 12 12 12 32 32 32 32 32 32 32 32
3:  12 12 11 10 12 12 12 12 32 32 32 32 32 32 32 32
4:  12 12 12 12 10 11 12 12 32 32 32 32 32 32 32 32
5:  12 12 12 12 11 10 12 12 32 32 32 32 32 32 32 32
6:  12 12 12 12 12 12 10 11 32 32 32 32 32 32 32 32
7:  12 12 12 12 12 12 11 10 32 32 32 32 32 32 32 32
8:  32 32 32 32 32 32 32 32 10 11 12 12 12 12 12 12
9:  32 32 32 32 32 32 32 32 11 10 12 12 12 12 12 12
10: 32 32 32 32 32 32 32 32 12 12 10 11 12 12 12 12
11: 32 32 32 32 32 32 32 32 12 12 11 10 12 12 12 12
12: 32 32 32 32 32 32 32 32 12 12 12 12 10 11 12 12
13: 32 32 32 32 32 32 32 32 12 12 12 12 11 10 12 12
14: 32 32 32 32 32 32 32 32 12 12 12 12 12 12 10 11
15: 32 32 32 32 32 32 32 32 12 12 12 12 12 12 11 10

```

```

-----
9. /proc/meminfo
   MemTotal:      1585036964 kB

```

```

-----
10. who -r
    run-level 3 May 9 12:17

```

```

-----
11. Systemd service manager version: systemd 250 (250-6.el9_0)
    Default Target Status

```

(Continued on next page)



# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Inspur Electronic Information Industry Co., Ltd.  
(IEI)

SPECrate®2017\_int\_base = 1120

NF5280A7 (AMD EPYC 9474F)

SPECrate®2017\_int\_peak = 1170

CPU2017 License: 3358

Test Date: May-2023

Test Sponsor: Inspur Electronic Information Industry Co., Ltd. (IEI)

Hardware Availability: Feb-2023

Tested by: Inspur Electronic Information Industry Co., Ltd. (IEI)

Software Availability: Nov-2022

## Platform Notes (Continued)

multi-user      running

### 12. Services, from `systemctl list-unit-files`

STATE	UNIT FILES
enabled	NetworkManager NetworkManager-dispatcher NetworkManager-wait-online auditd chronyd crond dbus-broker firewalld getty@ irqbalance kdump lvm2-monitor mdmonitor microcode nis-domainname rhsmcertd rsyslog selinux-autorelabel-mark sshd sssd systemd-network-generator tuned udisks2 upower
enabled-runtime	systemd-remount-fs
disabled	blk-availability canberra-system-bootup canberra-system-shutdown canberra-system-shutdown-reboot chrony-wait console-getty cpupower debug-shell hwloc-dump-hwdata kvm_stat man-db-restart-cache-update nftables rdisc rhsm rhsm-facts rpmdb-rebuild serial-getty@ sshd-keygen@ systemd-boot-check-no-failures systemd-pstore systemd-sysext
indirect	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-5.14.0-70.13.1.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 3.60 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: 3600MHz

```

### 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

```

(Continued on next page)





# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Inspur Electronic Information Industry Co., Ltd.  
(IEI)

SPECrate®2017\_int\_base = 1120

NF5280A7 (AMD EPYC 9474F)

SPECrate®2017\_int\_peak = 1170

CPU2017 License: 3358

Test Date: May-2023

Test Sponsor: Inspur Electronic Information Industry Co., Ltd. (IEI)

Hardware Availability: Feb-2023

Tested by: Inspur Electronic Information Industry Co., Ltd. (IEI)

Software Availability: Nov-2022

## Platform Notes (Continued)

```

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      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   819G  14G  805G   2% /home

```

```

-----
21. /sys/devices/virtual/dmi/id
Vendor:         IEI
Product:        NF5280A7
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:
  1x Samsung M321R8GA0BB0-CQKDS 64 GB 2 rank 4800
  23x Samsung M321R8GA0BB0-CQKMG 64 GB 2 rank 4800

```

```

-----
23. BIOS
(This section combines info from /sys/devices and dmidecode.)
BIOS Vendor:      American Megatrends International, LLC.
BIOS Version:     04.02.14
BIOS Date:        12/29/2022

```



# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Inspur Electronic Information Industry Co., Ltd.  
(IEI)

SPECrate®2017\_int\_base = 1120

NF5280A7 (AMD EPYC 9474F)

SPECrate®2017\_int\_peak = 1170

CPU2017 License: 3358

Test Date: May-2023

Test Sponsor: Inspur Electronic Information Industry Co., Ltd. (IEI)

Hardware Availability: Feb-2023

Tested by: Inspur Electronic Information Industry Co., Ltd. (IEI)

Software Availability: Nov-2022

## 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  
-----

-----  
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)  
-----

(Continued on next page)



# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Inspur Electronic Information Industry Co., Ltd.  
(IEI)

SPECrate®2017\_int\_base = 1120

NF5280A7 (AMD EPYC 9474F)

SPECrate®2017\_int\_peak = 1170

CPU2017 License: 3358

Test Date: May-2023

Test Sponsor: Inspur Electronic Information Industry Co., Ltd. (IEI)

Hardware Availability: Feb-2023

Tested by: Inspur Electronic Information Industry Co., Ltd. (IEI)

Software Availability: Nov-2022

## Compiler Version Notes (Continued)

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

=====  
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



# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Inspur Electronic Information Industry Co., Ltd.  
(IEI)

SPECrate®2017\_int\_base = 1120

NF5280A7 (AMD EPYC 9474F)

SPECrate®2017\_int\_peak = 1170

**CPU2017 License:** 3358

**Test Sponsor:** Inspur Electronic Information Industry Co., Ltd. (IEI)

**Tested by:** Inspur Electronic Information Industry Co., Ltd. (IEI)

**Test Date:** May-2023

**Hardware Availability:** Feb-2023

**Software Availability:** Nov-2022

## 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
```



# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Inspur Electronic Information Industry Co., Ltd.  
(IEI)

SPECrate®2017\_int\_base = 1120

NF5280A7 (AMD EPYC 9474F)

SPECrate®2017\_int\_peak = 1170

**CPU2017 License:** 3358

**Test Date:** May-2023

**Test Sponsor:** Inspur Electronic Information Industry Co., Ltd. (IEI)

**Hardware Availability:** Feb-2023

**Tested by:** Inspur Electronic Information Industry Co., Ltd. (IEI)

**Software Availability:** Nov-2022

## 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: -m64 -flto -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3 -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 -lamdlibm
```

(Continued on next page)



# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Inspur Electronic Information Industry Co., Ltd.  
(IEI)

SPECrate®2017\_int\_base = 1120

NF5280A7 (AMD EPYC 9474F)

SPECrate®2017\_int\_peak = 1170

CPU2017 License: 3358

Test Date: May-2023

Test Sponsor: Inspur Electronic Information Industry Co., Ltd. (IEI)

Hardware Availability: Feb-2023

Tested by: Inspur Electronic Information Industry Co., Ltd. (IEI)

Software Availability: Nov-2022

## Peak Optimization Flags (Continued)

505.mcf\_r (continued):

-lflang -lamdalloc

525.x264\_r: basepeak = yes

557.xz\_r: basepeak = yes

C++ benchmarks:

520.omnetpp\_r: basepeak = yes

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: basepeak = yes

541.leela\_r: basepeak = yes

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 -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

## 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)



# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Inspur Electronic Information Industry Co., Ltd.  
(IEI)

SPECrate®2017\_int\_base = 1120

NF5280A7 (AMD EPYC 9474F)

SPECrate®2017\_int\_peak = 1170

**CPU2017 License:** 3358

**Test Date:** May-2023

**Test Sponsor:** Inspur Electronic Information Industry Co., Ltd. (IEI)

**Hardware Availability:** Feb-2023

**Tested by:** Inspur Electronic Information Industry Co., Ltd. (IEI)

**Software Availability:** Nov-2022

## 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/Inspur-Platform-Settings-amd-V3.0.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-V3.0.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](mailto:info@spec.org).

Tested with SPEC CPU®2017 v1.1.9 on 2023-05-09 12:33:09-0400.

Report generated on 2023-06-06 19:10:48 by CPU2017 PDF formatter v6716.

Originally published on 2023-06-06.