



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2026 Standard Performance Evaluation Corporation

## Supermicro

GPU SuperServer AS -5126GS-TNRT2  
(H14DSG-Q-CPU , AMD EPYC 9555)

SPECrate®2017\_fp\_base = 1670

SPECrate®2017\_fp\_peak = 1800

CPU2017 License: 6569

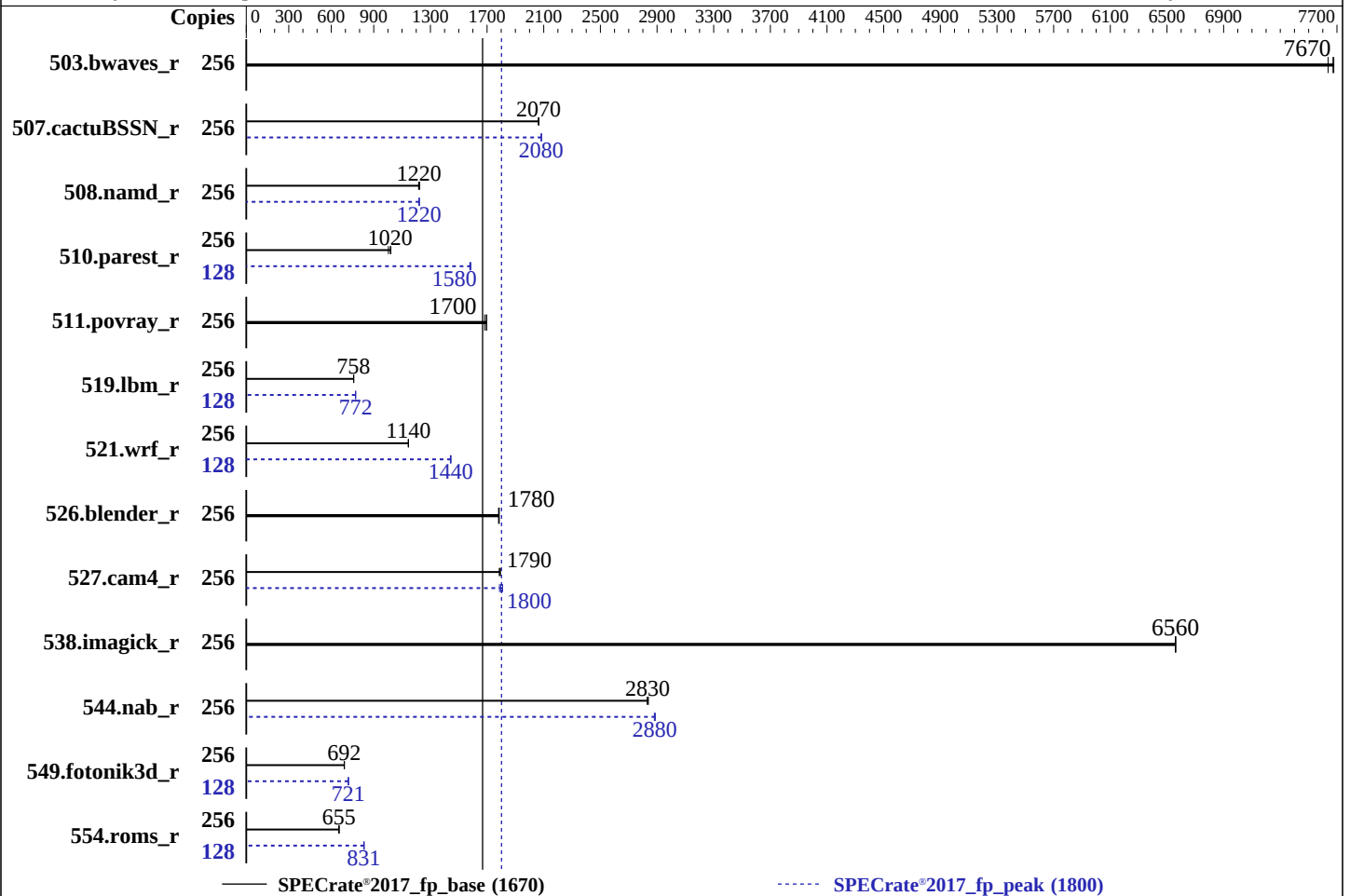
Test Sponsor: Supermicro

Tested by: Supermicro

Test Date: Jul-2026

Hardware Availability: Oct-2024

Software Availability: Jun-2026



### Hardware

CPU Name: AMD EPYC 9555  
Max MHz: 4400  
Nominal: 3200  
Enabled: 128 cores, 2 chips, 2 threads/core  
Orderable: 1,2 chips  
Cache L1: 32 KB I + 48 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: 2304 GB (24 x 96 GB 2Rx4 PC5-6400B-R)  
Storage: 1 x 240 GB SATA SSD  
Other: CPU Cooling: Air

### Software

OS: Ubuntu 24.04.4 LTS  
Kernel 6.8.0-134-generic  
Compiler: C/C++/Fortran: Version 5.0.0 of AOCC  
Parallel: No  
Firmware: Version 2.0 released Apr-2026  
File System: ext4  
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   |            |             |            |             |             |             |
|-----------------|--------|-------------|-------------|------------|-------------|-------------|-------------|--------|------------|-------------|------------|-------------|-------------|-------------|
|                 | Copies | Seconds     | Ratio       | Seconds    | Ratio       | Seconds     | Ratio       | Copies | Seconds    | Ratio       | Seconds    | Ratio       | Seconds     | Ratio       |
| 503.bwaves_r    | 256    | 336         | 7640        | <b>335</b> | <b>7670</b> | 334         | 7680        | 256    | 336        | 7640        | <b>335</b> | <b>7670</b> | 334         | 7680        |
| 507.cactuBSSN_r | 256    | 157         | 2060        | <b>157</b> | <b>2070</b> | 157         | 2070        | 256    | 156        | 2080        | <b>156</b> | <b>2080</b> | 156         | 2080        |
| 508.namd_r      | 256    | 200         | 1220        | <b>199</b> | <b>1220</b> | 199         | 1220        | 256    | <b>199</b> | <b>1220</b> | 199        | 1220        | 199         | 1220        |
| 510.parest_r    | 256    | <b>659</b>  | <b>1020</b> | 656        | 1020        | 668         | 1000        | 128    | 212        | 1580        | <b>212</b> | <b>1580</b> | 211         | 1590        |
| 511.povray_r    | 256    | 352         | 1700        | <b>353</b> | <b>1700</b> | 355         | 1680        | 256    | 352        | 1700        | <b>353</b> | <b>1700</b> | 355         | 1680        |
| 519.lbm_r       | 256    | 356         | 758         | <b>356</b> | <b>758</b>  | 356         | 758         | 128    | <b>175</b> | <b>772</b>  | 175        | 772         | 175         | 771         |
| 521.wrf_r       | 256    | <b>501</b>  | <b>1140</b> | 501        | 1150        | 501         | 1140        | 128    | <b>199</b> | <b>1440</b> | 199        | 1440        | 198         | 1440        |
| 526.blender_r   | 256    | <b>219</b>  | <b>1780</b> | 219        | 1780        | 218         | 1790        | 256    | <b>219</b> | <b>1780</b> | 219        | 1780        | 218         | 1790        |
| 527.cam4_r      | 256    | 251         | 1790        | 249        | 1790        | <b>250</b>  | <b>1790</b> | 256    | 250        | 1790        | 247        | 1810        | <b>249</b>  | <b>1800</b> |
| 538.imagick_r   | 256    | 97.1        | 6560        | 97.0       | 6560        | <b>97.1</b> | <b>6560</b> | 256    | 97.1       | 6560        | 97.0       | 6560        | <b>97.1</b> | <b>6560</b> |
| 544.nab_r       | 256    | 152         | 2840        | <b>152</b> | <b>2830</b> | 152         | 2830        | 256    | <b>149</b> | <b>2880</b> | 149        | 2890        | 150         | 2880        |
| 549.fotonik3d_r | 256    | <b>1441</b> | <b>692</b>  | 1440       | 693         | 1443        | 691         | 128    | 692        | 721         | 692        | 721         | <b>692</b>  | <b>721</b>  |
| 554.roms_r      | 256    | 620         | 656         | <b>622</b> | <b>655</b>  | 622         | 654         | 128    | 245        | 832         | <b>245</b> | <b>831</b>  | 245         | 831         |

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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,

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## Operating System Notes (Continued)

'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/amd\_rate\_aocc500\_znver5\_A\_lib/lib:/home/cpu2017/amd\_rate\_aocc500\_znver5\_A\_lib/lib32:"

MALLOC\_CONF = "retain:true"

## 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 settings:

NUMA Nodes Per Socket = NPS4

Determinism Control = Manual

Determinism Enable = Power

TDP control = Manual

TDP = 400

Package Power Limit Control = Manual

Package Power Limit = 400

TSME = Disabled

Sysinfo program /home/cpu2017/bin/sysinfo

Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197

running on smc Wed Jul 15 07:02:02 2026

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 255 (255.4-1ubuntu8.16)

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## Platform Notes (Continued)

```
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 smc 6.8.0-134-generic #134-Ubuntu SMP PREEMPT_DYNAMIC Fri Jun 26 18:43:11 UTC 2026 x86_64 x86_64
x86_64 GNU/Linux
```

```
2. w
07:02:02 up 4:50, 1 user, load average: 141.21, 225.34, 242.77
USER      TTY      FROM            LOGIN@   IDLE   JCPU   PCPU   WHAT
smc       tty1      -               02:11    4:39m  0.45s  0.43s  sudo su -
```

```
3. Username
From environment variable $USER: root
From the command 'logname': smc
```

```
4. ulimit -a
time(seconds)      unlimited
file(blocks)       unlimited
data(kbytes)       unlimited
stack(kbytes)      unlimited
coredump(blocks)   0
memory(kbytes)     unlimited
locked memory(kbytes) 2097152
process            9286875
nofiles            1024
vmemory(kbytes)    unlimited
locks              unlimited
rtprio             0
```

```
5. sysinfo process ancestry
/sbin/init
/bin/login -p --
-bash
sudo su -
sudo su -
su -
-bash
python3 ./run_amd_rate_aocc500_znver5_A1.py
/bin/bash ./amd_rate_aocc500_znver5_A1.sh
runcpu --config amd_rate_aocc500_znver5_A1.cfg --tune all --reportable --iterations 3 fprate
runcpu --configfile amd_rate_aocc500_znver5_A1.cfg --tune all --reportable --iterations 3 --nopower
--runmode rate --tune base:peak --size test:train:refrate fprate --nopreenv --note-preenv --logfile
$SPEC/tmp/CPU2017.002/temlogs/preenv.fprate.002.0.log --lognum 002.0 --from_runcpu 2
```

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## Platform Notes (Continued)

specperl \$SPEC/bin/sysinfo  
\$SPEC = /home/cpu2017

```
-----
6. /proc/cpuinfo
model name      : AMD EPYC 9555 64-Core Processor
vendor_id       : AuthenticAMD
cpu family      : 26
model           : 2
stepping        : 1
microcode       : 0xb002162
bugs            : sysret_ss_attrs spectre_v1 spectre_v2 spec_store_bypass
TLB size        : 192 4K pages
cpu cores       : 64
siblings        : 128
2 physical ids (chips)
256 processors (hardware threads)
physical id 0:   core ids 0-63
physical id 1:   core ids 0-63
physical id 0:   apicids 0-127
physical id 1:   apicids 128-255
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 2.39.3:

|                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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):              | 256                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| On-line CPU(s) list: | 0-255                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Vendor ID:           | AuthenticAMD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| BIOS Vendor ID:      | Advanced Micro Devices, Inc.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Model name:          | AMD EPYC 9555 64-Core Processor                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| BIOS Model name:     | AMD EPYC 9555 64-Core Processor                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|                      | 3.2GHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| BIOS CPU family:     | 107                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| CPU family:          | 26                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Model:               | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Thread(s) per core:  | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Core(s) per socket:  | 64                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Socket(s):           | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Stepping:            | 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Frequency boost:     | enabled                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| CPU(s) scaling MHz:  | 73%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| CPU max MHz:         | 4409.3750                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| CPU min MHz:         | 1500.0000                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| BogoMIPS:            | 6399.74                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Flags:               | fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov pat<br>pse36 clflush mmx fxsr sse sse2 ht syscall nx mmxext fxsr_opt<br>pdpe1gb rdtscp lm constant_tsc rep_good amd_lbr_v2 nopl<br>nonstop_tsc cpuid extd_apicid aperfmperf rapl pni pclmulqdq<br>monitor ssse3 fma cx16 pcid sse4_1 sse4_2 x2apic movbe popcnt aes<br>xsave avx f16c rdrand lahf_lm cmp_legacy extapic cr8_legacy abm<br>sse4a misalignsse 3dnowprefetch osvw ibs skinit wdt tce topoext<br>perfctr_core perfctr_nb bpext perfctr_llc mwaitx cpb cat_l3 cdp_l3<br>hw_pstate ssbd mba perfmon_v2 ibrs ibpb stibp ibrs_enhanced |

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## Platform Notes (Continued)

vmcall fsgsbase tsc\_adjust 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 user\_shstk  
avx\_vnni avx512\_bf16 clzero irperf xsaveerptr rdpru wbnoinvd  
amd\_ppin cpcp amd\_ibpb\_ret arat npt lbrv svm\_lock nrip\_save  
tsc\_scale vmcb\_clean flushbyasid decodeassists pausefilter  
pfthreshold avic v\_vmsave\_vmload vgif x2avic v\_spec\_ctrl vnmi  
avx512vbmi umip pku ospke avx512\_vbmi2 gfni vaes vpclmulqdq  
avx512\_vnni avx512\_bitalg avx512\_vpopcntdq la57 rdpid  
bus\_lock\_detect movdiri movdir64b overflow\_recov succor smca fsrm  
avx512\_vp2intersect flush\_l1d debug\_swap srso\_user\_kernel\_no

L1d cache: 6 MiB (128 instances)  
L1i cache: 4 MiB (128 instances)  
L2 cache: 128 MiB (128 instances)  
L3 cache: 512 MiB (16 instances)

NUMA node(s): 8  
NUMA node0 CPU(s): 0-15,128-143  
NUMA node1 CPU(s): 16-31,144-159  
NUMA node2 CPU(s): 32-47,160-175  
NUMA node3 CPU(s): 48-63,176-191  
NUMA node4 CPU(s): 64-79,192-207  
NUMA node5 CPU(s): 80-95,208-223  
NUMA node6 CPU(s): 96-111,224-239  
NUMA node7 CPU(s): 112-127,240-255

Vulnerability Gather data sampling: Not affected  
Vulnerability Indirect target selection: Not affected  
Vulnerability Itlb multihit: Not affected  
Vulnerability L1tf: Not affected  
Vulnerability Mds: Not affected  
Vulnerability Meltdown: Not affected  
Vulnerability Mmio stale data: Not affected  
Vulnerability Reg file data sampling: Not affected  
Vulnerability Retbleed: Not affected  
Vulnerability Spec rstack overflow: Not affected  
Vulnerability Spec store bypass: Mitigation; Speculative Store Bypass disabled via prctl  
Vulnerability Spectre v1: Mitigation; usercopy/swapgs barriers and \_\_user pointer sanitization  
Vulnerability Spectre v2: Mitigation; Enhanced / Automatic IBRS; IBPB conditional; STIBP always-on; PBRSE-eIBRS Not affected; BHI Not affected

Vulnerability Srbds: Not affected  
Vulnerability Tsa: Not affected  
Vulnerability Tsx async abort: Not affected  
Vulnerability Vmscape: Not affected

From lscpu --cache:

| NAME | ONE-SIZE | ALL-SIZE | WAYS | TYPE        | LEVEL | SETS  | PHY-LINE | COHERENCY-SIZE |
|------|----------|----------|------|-------------|-------|-------|----------|----------------|
| L1d  | 48K      | 6M       | 12   | Data        | 1     | 64    | 1        | 64             |
| L1i  | 32K      | 4M       | 8    | Instruction | 1     | 64    | 1        | 64             |
| L2   | 1M       | 128M     | 16   | Unified     | 2     | 1024  | 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: 8 nodes (0-7)  
node 0 cpus: 0-15,128-143  
node 0 size: 289865 MB  
node 0 free: 287855 MB  
node 1 cpus: 16-31,144-159

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## Platform Notes (Continued)

```
node 1 size: 290292 MB
node 1 free: 288672 MB
node 2 cpus: 32-47,160-175
node 2 size: 290292 MB
node 2 free: 288726 MB
node 3 cpus: 48-63,176-191
node 3 size: 290249 MB
node 3 free: 288585 MB
node 4 cpus: 64-79,192-207
node 4 size: 290292 MB
node 4 free: 288577 MB
node 5 cpus: 80-95,208-223
node 5 size: 290292 MB
node 5 free: 288655 MB
node 6 cpus: 96-111,224-239
node 6 size: 290292 MB
node 6 free: 288409 MB
node 7 cpus: 112-127,240-255
node 7 size: 290221 MB
node 7 free: 288603 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
```

9. /proc/meminfo  
MemTotal: 2377523852 kB

10. who -r  
run-level 3 Jul 15 02:11

11. Systemd service manager version: systemd 255 (255.4-1ubuntu8.16)  
Default Target Status  
multi-user running

12. Services, from systemctl list-unit-files

| STATE           | UNIT FILES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| enabled         | ModemManager apparmor apport blk-availability cloud-config cloud-final cloud-init cloud-init-local console-setup cron dmesg e2scrub_reap finalrd getty@ gpu-manager grub-common grub-initrd-fallback keyboard-setup lvm2-monitor multipathd networkd-dispatcher open-iscsi open-vm-tools pollinate rsyslog secureboot-db setvtrgb snapd sysstat systemd-networkd systemd-networkd-wait-online systemd-pstore systemd-resolved systemd-timesyncd thermald tuned ua-reboot-cmds ubuntu-advantage udisks2 ufw unattended-upgrades vgauth |
| enabled-runtime | netplan-ovs-cleanup systemd-fsck-root systemd-remount-fs                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| disabled        | console-getty debug-shell iscsid nftables rsync serial-getty@ ssh systemd-boot-check-no-failures systemd-confext systemd-network-generator systemd-networkd-wait-online@ systemd-pcrlock-file-system systemd-pcrlock-firmware-code systemd-pcrlock-firmware-config systemd-pcrlock-machine-id systemd-pcrlock-make-policy systemd-pcrlock-secureboot-authority systemd-pcrlock-secureboot-policy systemd-sysex                                                                                                                        |

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### Platform Notes (Continued)

indirect systemd-time-wait-sync upower  
masked systemd-sysupdate systemd-sysupdate-reboot uidd  
cryptdisks cryptdisks-early hwclock multipath-tools-boot screen-cleanup sudo x11-common

-----  
13. Linux kernel boot-time arguments, from /proc/cmdline  
BOOT\_IMAGE=/vmlinuz-6.8.0-134-generic  
root=/dev/mapper/ubuntu--vg-ubuntu--lv  
ro  
-----

14. cpupower frequency-info  
analyzing CPU 83:  
current policy: frequency should be within 1.50 GHz and 3.20 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: 3200MHz  
-----

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+madvice | madvice | never      |
| enabled        | [always] | madvice     | 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     |

-----

(Continued on next page)



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## Supermicro

GPU SuperServer AS -5126GS-TNRT2  
(H14DSG-Q-CPU , AMD EPYC 9555)

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SPECrate®2017\_fp\_peak = 1800

CPU2017 License: 6569

Test Sponsor: Supermicro

Tested by: Supermicro

Test Date: Jul-2026

Hardware Availability: Oct-2024

Software Availability: Jun-2026

## Platform Notes (Continued)

|                      |       |
|----------------------|-------|
| 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 Ubuntu 24.04.4 LTS

### 20. Disk information

SPEC is set to: /home/cpu2017

| Filesystem                        | Type | Size | Used | Avail | Use% | Mounted on |
|-----------------------------------|------|------|------|-------|------|------------|
| /dev/mapper/ubuntu--vg-ubuntu--lv | ext4 | 217G | 16G  | 191G  | 8%   | /          |

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

Vendor: Supermicro  
Product: Super Server  
Product Family: Family  
Serial: 0123456789

### 22. dmidecode

Additional information from dmidecode 3.5 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 M321RYGA0PB2-CCPKC 96 GB 2 rank 6400

### 23. BIOS

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

BIOS Vendor: American Megatrends International, LLC.  
BIOS Version: 2.0  
BIOS Date: 04/01/2026  
BIOS Revision: 5.35

## Compiler Version Notes

C | 519.lbm\_r(base, peak) 538.imagick\_r(base, peak) 544.nab\_r(base, peak)

AMD clang version 17.0.6 (CLANG: AOCC\_5.0.0-Build#1316 2024\_09\_09)

Target: x86\_64-unknown-linux-gnu

Thread model: posix

InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-5.0.0-4925-1316/bin

C++ | 508.namd\_r(base, peak) 510.parest\_r(base, peak)

AMD clang version 17.0.6 (CLANG: AOCC\_5.0.0-Build#1316 2024\_09\_09)

Target: x86\_64-unknown-linux-gnu

Thread model: posix

(Continued on next page)



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Hardware Availability: Oct-2024

Software Availability: Jun-2026

## Compiler Version Notes (Continued)

InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-5.0.0-4925-1316/bin

=====  
C++, C | 511.povray\_r(base, peak) 526.blender\_r(base, peak)  
=====

AMD clang version 17.0.6 (CLANG: AOCC\_5.0.0-Build#1316 2024\_09\_09)  
Target: x86\_64-unknown-linux-gnu  
Thread model: posix  
InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-5.0.0-4925-1316/bin  
AMD clang version 17.0.6 (CLANG: AOCC\_5.0.0-Build#1316 2024\_09\_09)  
Target: x86\_64-unknown-linux-gnu  
Thread model: posix  
InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-5.0.0-4925-1316/bin  
=====

=====  
C++, C, Fortran | 507.cactuBSSN\_r(base, peak)  
=====

AMD clang version 17.0.6 (CLANG: AOCC\_5.0.0-Build#1316 2024\_09\_09)  
Target: x86\_64-unknown-linux-gnu  
Thread model: posix  
InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-5.0.0-4925-1316/bin  
AMD clang version 17.0.6 (CLANG: AOCC\_5.0.0-Build#1316 2024\_09\_09)  
Target: x86\_64-unknown-linux-gnu  
Thread model: posix  
InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-5.0.0-4925-1316/bin  
AMD clang version 17.0.6 (CLANG: AOCC\_5.0.0-Build#1316 2024\_09\_09)  
Target: x86\_64-unknown-linux-gnu  
Thread model: posix  
InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-5.0.0-4925-1316/bin  
=====

=====  
Fortran | 503.bwaves\_r(base, peak) 549.fotonik3d\_r(base, peak) 554.roms\_r(base, peak)  
=====

AMD clang version 17.0.6 (CLANG: AOCC\_5.0.0-Build#1316 2024\_09\_09)  
Target: x86\_64-unknown-linux-gnu  
Thread model: posix  
InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-5.0.0-4925-1316/bin  
=====

=====  
Fortran, C | 521.wrf\_r(base, peak) 527.cam4\_r(base, peak)  
=====

AMD clang version 17.0.6 (CLANG: AOCC\_5.0.0-Build#1316 2024\_09\_09)  
Target: x86\_64-unknown-linux-gnu  
Thread model: posix  
InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-5.0.0-4925-1316/bin  
AMD clang version 17.0.6 (CLANG: AOCC\_5.0.0-Build#1316 2024\_09\_09)  
Target: x86\_64-unknown-linux-gnu  
Thread model: posix  
InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-5.0.0-4925-1316/bin  
=====



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Software Availability: Jun-2026

## Base Compiler Invocation

C benchmarks:

clang

C++ benchmarks:

clang++

Fortran benchmarks:

flang

Benchmarks using both Fortran and C:

flang clang

Benchmarks using both C and C++:

clang++ clang

Benchmarks using Fortran, C, and C++:

clang++ clang flang

## Base Portability Flags

503.bwaves\_r: -DSPEC\_LP64  
507.cactuBSSN\_r: -DSPEC\_LP64  
508.namd\_r: -DSPEC\_LP64  
510.parest\_r: -DSPEC\_LP64  
511.povray\_r: -DSPEC\_LP64  
519.lbm\_r: -DSPEC\_LP64  
521.wrf\_r: -DSPEC\_CASE\_FLAG -Mbyteswapio -DSPEC\_LP64  
526.blender\_r: -funsigned-char -DSPEC\_LP64  
527.cam4\_r: -DSPEC\_CASE\_FLAG -DSPEC\_LP64  
538.imagick\_r: -DSPEC\_LP64  
544.nab\_r: -DSPEC\_LP64  
549.fotonik3d\_r: -DSPEC\_LP64  
554.roms\_r: -DSPEC\_LP64

## Base Optimization Flags

C benchmarks:

-m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6  
-Wl,-mllvm -Wl,-reduce-array-computations=3  
-Wl,-mllvm -Wl,-ldist-scalar-expand -fenable-aggressive-gather -O3  
-march=znver5 -fveclib=AMDLIBM -ffast-math -fno-PIE -no-pie -fltto  
-fstruct-layout=7 -mllvm -unroll-threshold=50

(Continued on next page)



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Software Availability: Jun-2026

## Base Optimization Flags (Continued)

C benchmarks (continued):

```
-mllvm -inline-threshold=1000 -fremap-arrays -fstrip-mining  
-mllvm -reduce-array-computations=3 -zopt -lamdlibm -lamdalloc  
-lflang -ldl
```

C++ benchmarks:

```
-m64 -std=c++14 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6  
-Wl,-mllvm -Wl,-reduce-array-computations=3  
-Wl,-mllvm -Wl,-x86-use-vzeroupper=false -Wl,-mllvm -Wl,-extra-inliner  
-O3 -march=znver5 -fveclib=AMDLibm -ffast-math -flto  
-mllvm -unroll-threshold=100 -mllvm -loop-unswitch-threshold=200000  
-mllvm -reduce-array-computations=3 -zopt -lamdlibm -lamdalloc  
-lflang -ldl
```

Fortran benchmarks:

```
-m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6  
-Wl,-mllvm -Wl,-reduce-array-computations=3  
-Wl,-mllvm -Wl,-enable-X86-prefetching  
-Wl,-mllvm -Wl,-enable-aggressive-gather=true  
-Wl,-mllvm -Wl,-enable-masked-gather-sequence=false -O3 -march=znver5  
-fveclib=AMDLibm -ffast-math -flto -Mrecursive -funroll-loops  
-mllvm -lsr-in-nested-loop -mllvm -reduce-array-computations=3  
-fepilog-vectorization-of-inductions -zopt -lamdlibm -lamdalloc  
-lflang -ldl
```

Benchmarks using both Fortran and C:

```
-m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6  
-Wl,-mllvm -Wl,-reduce-array-computations=3  
-Wl,-mllvm -Wl,-enable-X86-prefetching  
-Wl,-mllvm -Wl,-enable-aggressive-gather=true  
-Wl,-mllvm -Wl,-enable-masked-gather-sequence=false -O3 -march=znver5  
-fveclib=AMDLibm -ffast-math -fno-PIE -no-pie -flto  
-fstruct-layout=7 -mllvm -unroll-threshold=50  
-mllvm -inline-threshold=1000 -fremap-arrays -fstrip-mining  
-mllvm -reduce-array-computations=3 -zopt -Mrecursive -funroll-loops  
-mllvm -lsr-in-nested-loop -fepilog-vectorization-of-inductions  
-lamdlibm -lamdalloc -lflang -ldl
```

Benchmarks using both C and C++:

```
-m64 -std=c++14 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6  
-Wl,-mllvm -Wl,-reduce-array-computations=3  
-Wl,-mllvm -Wl,-x86-use-vzeroupper=false -Wl,-mllvm -Wl,-extra-inliner  
-O3 -march=znver5 -fveclib=AMDLibm -ffast-math -fno-PIE -no-pie  
-flto -fstruct-layout=7 -mllvm -unroll-threshold=50  
-mllvm -inline-threshold=1000 -fremap-arrays -fstrip-mining  
-mllvm -reduce-array-computations=3 -zopt -mllvm -unroll-threshold=100
```

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## Base Optimization Flags (Continued)

Benchmarks using both C and C++ (continued):

-mllvm -loop-unswitch-threshold=2000000 -lamdlibm -lamdalloc -lflang  
-ldl

Benchmarks using Fortran, C, and C++:

-m64 -std=c++14 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6  
-Wl,-mllvm -Wl,-reduce-array-computations=3  
-Wl,-mllvm -Wl,-x86-use-vzeroupper=false -Wl,-mllvm -Wl,-extra-inliner  
-O3 -march=znver5 -fveclib=AMDLIBM -ffast-math -fno-PIE -no-pie  
-flto -fstruct-layout=7 -mllvm -unroll-threshold=50  
-mllvm -inline-threshold=1000 -fremap-arrays -fstrip-mining  
-mllvm -reduce-array-computations=3 -zopt -mllvm -unroll-threshold=100  
-mllvm -loop-unswitch-threshold=2000000 -Mrecursive -funroll-loops  
-mllvm -lsr-in-nested-loop -fepilog-vectorization-of-inductions  
-lamdlibm -lamdalloc -lflang -ldl

## Base Other Flags

C benchmarks:

-Wno-unused-command-line-argument

C++ benchmarks:

-Wno-unused-command-line-argument

Fortran benchmarks:

-Wno-unused-command-line-argument

Benchmarks using both Fortran and C:

-Wno-unused-command-line-argument

Benchmarks using both C and C++:

-Wno-unused-command-line-argument

Benchmarks using Fortran, C, and C++:

-Wno-unused-command-line-argument

## Peak Compiler Invocation

C benchmarks:

clang

(Continued on next page)



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## Peak Compiler Invocation (Continued)

C++ benchmarks:

clang++

Fortran benchmarks:

flang

Benchmarks using both Fortran and C:

flang clang

Benchmarks using both C and C++:

clang++ clang

Benchmarks using Fortran, C, and C++:

clang++ clang flang

## Peak Portability Flags

Same as Base Portability Flags

## Peak Optimization Flags

C benchmarks:

```
519.lbm_r: -m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3 -Ofast
-march=znver5 -fveclib=AMDLIBM -ffast-math -flto
-fstruct-layout=7 -mllvm -unroll-threshold=50
-freemap-arrays -fstrip-mining
-mllvm -inline-threshold=1000
-mllvm -reduce-array-computations=3 -zopt -lamdlibm
-lamdalloc -ldl
```

538.imagick\_r: basepeak = yes

```
544.nab_r: -m64 -flto -Wl,-mllvm -Wl,-ldist-scalar-expand
-fenable-aggressive-gather -Ofast -march=znver5
-fveclib=AMDLIBM -ffast-math -fstruct-layout=7
-mllvm -unroll-threshold=50 -freemap-arrays -fstrip-mining
-mllvm -inline-threshold=1000
-mllvm -reduce-array-computations=3 -zopt -lamdlibm
-lamdalloc -ldl
```

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## Peak Optimization Flags (Continued)

C++ benchmarks:

```
508.namd_r: -m64 -std=c++14
-Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-x86-use-vzeroupper=false -Ofast
-march=znver5 -fveclib=AMDLIBM -ffast-math -flto
-mllvm -unroll-threshold=100
-mllvm -reduce-array-computations=3 -zopt -lamdlibm
-lamdalloc -ldl
```

```
510.parest_r: -m64 -std=c++14 -flto -Wl,-mllvm -Wl,-suppress-fmas
-Wl,-mllvm -Wl,-x86-use-vzeroupper=false -Ofast
-march=znver5 -fveclib=AMDLIBM -ffast-math
-mllvm -unroll-threshold=100
-mllvm -reduce-array-computations=3 -zopt -lamdlibm
-lamdalloc -ldl
```

Fortran benchmarks:

```
503.bwaves_r: basepeak = yes
```

```
549.fotonik3d_r: -m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3 -Ofast
-march=znver5 -fveclib=AMDLIBM -ffast-math -flto
-Mrecursive -mllvm -reduce-array-computations=3
-fepilog-vectorization-of-inductions -fvector-transform
-fscalar-transform -lamdlibm -lamdalloc -ldl -lflang
```

```
554.roms_r: -m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3 -Ofast
-march=znver5 -fveclib=AMDLIBM -ffast-math -flto
-Mrecursive -mllvm -reduce-array-computations=3
-fepilog-vectorization-of-inductions -zopt -lamdlibm
-lamdalloc -ldl -lflang
```

Benchmarks using both Fortran and C:

```
521.wrf_r: -m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3 -Ofast
-march=znver5 -fveclib=AMDLIBM -ffast-math -flto
-fstruct-layout=7 -mllvm -unroll-threshold=50
-fremap-arrays -fstrip-mining
-mllvm -inline-threshold=1000
-mllvm -reduce-array-computations=3 -zopt -Mrecursive
-funroll-loops -mllvm -lsr-in-nested-loop
```

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## Peak Optimization Flags (Continued)

521.wrf\_r (continued):

-fepilog-vectorization-of-inductions -lamdlibm -lamdalloc  
-ldl -lflang

527.cam4\_r: -m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6  
-Wl,-mllvm -Wl,-reduce-array-computations=3  
-Wl,-mllvm -Wl,-enable-X86-prefetching -Ofast  
-march=znver5 -fveclib=AMDLIBM -ffast-math -flto  
-fstruct-layout=7 -mllvm -unroll-threshold=50  
-mllvm -inline-threshold=1000 -fremap-arrays  
-mllvm -reduce-array-computations=3 -zopt -Mrecursive  
-funroll-loops -mllvm -lsr-in-nested-loop  
-fepilog-vectorization-of-inductions -lamdlibm -lamdalloc  
-ldl -lflang

Benchmarks using both C and C++:

511.povray\_r: basepeak = yes

526.blender\_r: basepeak = yes

Benchmarks using Fortran, C, and C++:

-m64 -std=c++14 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6  
-Wl,-mllvm -Wl,-reduce-array-computations=3  
-Wl,-mllvm -Wl,-x86-use-vzeroupper=false -Ofast -march=znver5  
-fveclib=AMDLIBM -ffast-math -flto -fstruct-layout=7  
-mllvm -unroll-threshold=50 -fremap-arrays -fstrip-mining  
-mllvm -inline-threshold=1000 -mllvm -reduce-array-computations=3 -zopt  
-mllvm -unroll-threshold=100 -mllvm -loop-unswitch-threshold=200000  
-faggressive-loop-transform -fvector-transform -fscalar-transform  
-Mrecursive -fepilog-vectorization-of-inductions -lamdlibm -lamdalloc  
-ldl -lflang

## Peak Other Flags

C benchmarks:

-Wno-unused-command-line-argument

C++ benchmarks:

-Wno-unused-command-line-argument

Fortran benchmarks:

-Wno-unused-command-line-argument

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## Peak Other Flags (Continued)

Benchmarks using both Fortran and C:

-Wno-unused-command-line-argument

Benchmarks using both C and C++:

-Wno-unused-command-line-argument

Benchmarks using Fortran, C, and C++:

-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/aocc500-flags.2024-10-10.html>

<http://www.spec.org/cpu2017/flags/Supermicro-Platform-Settings-V1.2-Turin-revH.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2017/flags/aocc500-flags.2024-10-10.xml>

<http://www.spec.org/cpu2017/flags/Supermicro-Platform-Settings-V1.2-Turin-revH.xml>

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