# SPEC CPU®2017 Integer Rate Result



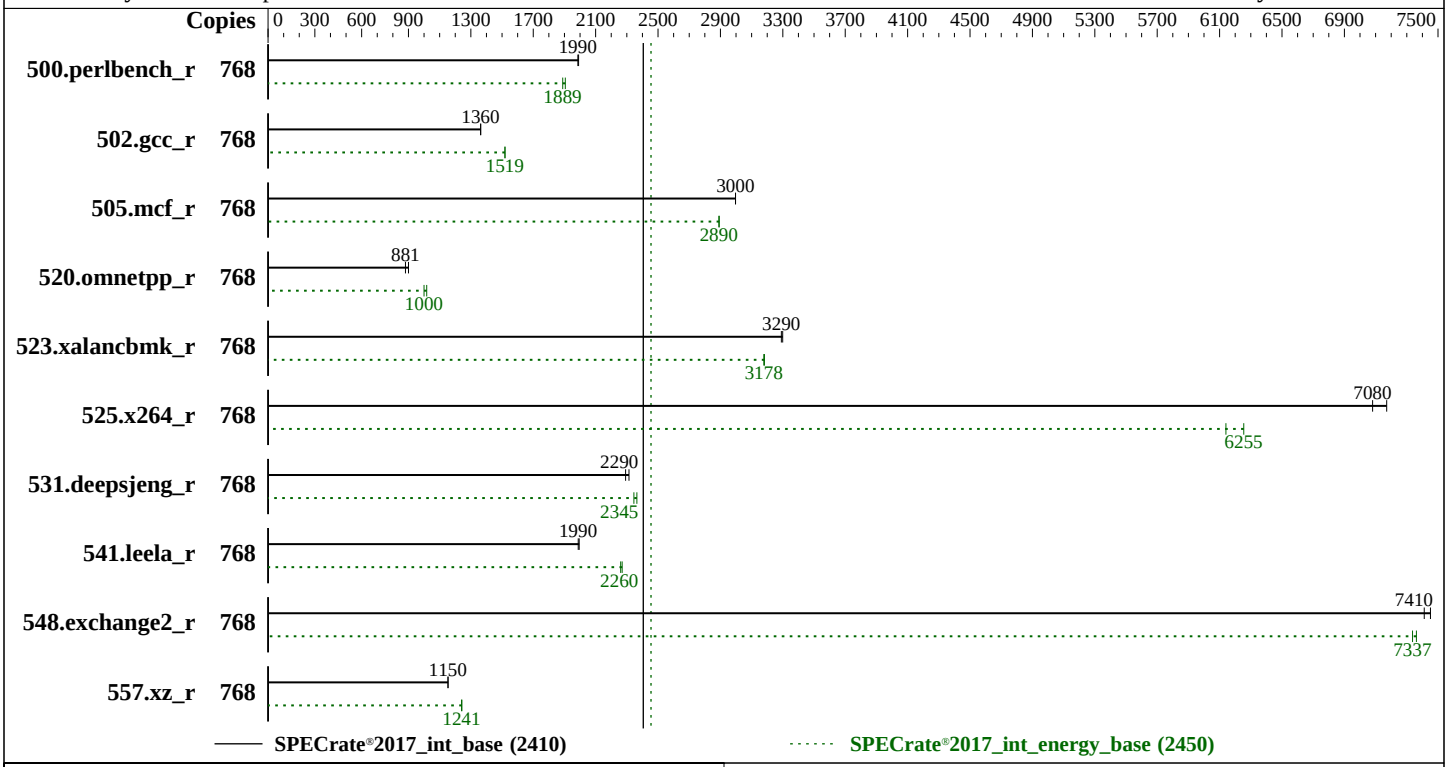
## Supermicro

## Hyper A+ Server AS -2126HS-TN (H14DSH , AMD EPYC 9965)

| | |
|---|---|
| SPECrate®2017_int_base = | 2410 |
| SPECrate®2017_int_energy_base = | 2450 |
| SPECrate®2017_int_peak = | Not Run |
| SPECrate®2017_int_energy_peak = | Not Run |

**CPU2017 License:** 001176
**Test Sponsor:** Supermicro
**Tested by:** Supermicro

**Test Date:** Sep-2024
**Hardware Availability:** Oct-2024
**Software Availability:** Oct-2024




## Hardware

| | |
|---|---|
| CPU Name: | AMD EPYC 9965 |
| Max MHz: | 3700 |
| Nominal: | 2250 |
| Enabled: | 384 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: | 384 MB I+D on chip per chip, 32 MB shared / 16 cores |
| Other: | None |
| Memory: | 1536 GB (24 x 64 GB 2Rx4 PC5-6400B-R, running at 5200) |
| Storage: | 1 x 500 GB M.2 NVMe SSD |
| Other: | CPU Cooling: Air |

## Software

| | |
|---|---|
| OS: | Ubuntu 24.04 LTS kernel 6.8.0-45-generic |
| Compiler: | C/C++/Fortran: Version 5.0.0 of AOCC |
| Parallel: | No |
| Firmware: | Version 1.1 released Sep-2024 |
| File System: | ext4 |
| System State: | Run level 5 (multi-user) |
| Base Pointers: | 64-bit |
| Peak Pointers: | Not Applicable |
| Other: | None |
| Power Management: | BIOS and OS set to prefer performance at the cost of additional power usage. |

## Power

| | |
|---|---|
| Max. Power (W): | 1383.8 |
| Idle Power (W): | 219.51 |
| Min. Temperature (C): | 32.69 |
| Elevation (m): | 132 |
| Line Standard: | 220 V / 50 Hz / 1 phase / 3 wires |

**(Continued on next page)**

### Power (Continued)

Provisioning: Line-powered

### Power Settings

Management FW: Version 01.00.00.00 of Supermicro BMC Firmware
Memory Mode: Normal

### Power-Relevant Hardware

| | |
|---|---|
| Power Supply: | 2 x 2000 W (redundant) |
| Details: | Supermicro PWS-2K07A-1R |
| Backplane: | 24 x 2.5-inch NVMe back plane |
| Other Storage: | None |
| Storage Model #s: | Samsung SSD 980 PRO 500GB |
| NICs Installed: | 1 x Supermicro AOC-AG-i2M @ 1 Gb |
| NICs Enabled (FW/OS): | 2 / 1 |
| NICs Connected/Speed: | 1 @ 1 Gb |
| Other HW Model #s: | None |

### Power Analyzer

| | |
|---|---|
| Power Analyzer: | 10.216.139.174:8888 |
| Hardware Vendor: | YOKOGAWA, Inc. |
| Model: | WT310E |
| Serial Number: | C2ZG04129V |
| Input Connection: | Ethernet |
| Metrology Institute: | NIST |
| Calibration By: | TESCOM |
| Calibration Label: | T119755 |
| Calibration Date: | 16-May-2024 |
| PTDaemon® Version: | 1.10.0 (82175bac; 2022-08-17) |
| Setup Description: | Directly connected |
| Current Ranges Used: | 2A, 10A |
| Voltage Range Used: | 300V |

### Temperature Meter

| | |
|---|---|
| Temperature Meter: | 10.216.139.174:8889 |
| Hardware Vendor: | iButtonLink, Inc. |
| Model: | PCsensor USB9097+DS18B20 |
| Serial Number: | LinkUSBi + T-Probe |
| Input Connection: | USB |
| PTDaemon Version: | 1.10.0 (82175bac; 2022-08-17) |
| Setup Description: | 50 mm in front of SUT main intake |

## Base Results Table

| Benchmark | Copies | Seconds | Ratio | Energy (kJ) | Energy Ratio | Average Power | Maximum Power | Seconds | Ratio | Energy (kJ) | Energy Ratio | Average Power | Maximum Power | Seconds | Ratio | Energy (kJ) | Energy Ratio | Average Power | Maximum Power |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 500.perlbench_r | 768 | 614 | 1990 | 696 | 1910 | 1130 | 1330 | **616** | **1990** | **702** | **1890** | **1140** | **1330** | | | | | | |
| 502.gcc_r | 768 | **798** | **1360** | **778** | **1520** | **974** | **1170** | 798 | 1360 | 778 | 1520 | 975 | 1170 | | | | | | |
| 505.mcf_r | 768 | **414** | **3000** | **470** | **2890** | **1130** | **1320** | 414 | 3000 | 469 | 2890 | 1130 | 1310 | | | | | | |
| 520.omnetpp_r | 768 | **1144** | **881** | **1090** | **1000** | **954** | **975** | 1119 | 900 | 1070 | 1020 | 959 | 983 | | | | | | |
| 523.xalancbmk_r | 768 | **246** | **3290** | **276** | **3180** | **1120** | **1280** | 246 | 3300 | 276 | 3180 | 1120 | 1270 | | | | | | |
| 525.x264_r | 768 | **190** | **7080** | **233** | **6250** | **1230** | **1360** | 188 | 7170 | 237 | 6140 | 1270 | 1380 | | | | | | |
| 531.deepsjeng_r | 768 | **384** | **2290** | **408** | **2350** | **1060** | **1110** | 380 | 2310 | 405 | 2360 | 1060 | 1120 | | | | | | |
| 541.leela_r | 768 | **640** | **1990** | **609** | **2260** | **952** | **1020** | 638 | 1990 | 606 | 2270 | 951 | 1020 | | | | | | |
| 548.exchange2_r | 768 | **271** | **7410** | **297** | **7340** | **1100** | **1150** | 270 | 7450 | 296 | 7360 | 1100 | 1150 | | | | | | |
| 557.xz_r | 768 | 719 | 1150 | 726 | 1240 | 1010 | 1110 | **719** | **1150** | **727** | **1240** | **1010** | **1110** | | | | | | |

**SPECrate®2017_int_base = 2410**

**SPECrate®2017_int_energy_base = 2450**

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.
```

## Environment Variables Notes

```
Environment variables set by runcpu before the start of the run:
LD_LIBRARY_PATH =
     "/spec/cpu2017aocc5znver5A1/amd_rate_aocc500_znver5_A_lib/lib:/spec/cpu2017aocc5znver5A1/amd_rate_aocc
     500_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
Memory Target Speed = 5200
```

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## Platform Notes (Continued)

```
DRAM Scrub Time = Disabled
TSME = Disabled
Determinism Control = Manual
Determinism Enable = Performance
xGMI Force Link Width = x4
xGMI Max Link Width = x4
4-link xGMI max speed = 20Gbps
BoostFmax = 2200

 Sysinfo program /spec/cpu2017aocc5znver5A1/bin/sysinfo
 Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
 running on smc9696turin-u2404os Mon Sep 23 16:37:35 2024

 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)
 12. Failed units, from systemctl list-units --state=failed
 13. Services, from systemctl list-unit-files
 14. Linux kernel boot-time arguments, from /proc/cmdline
 15. cpupower frequency-info
 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 smc9696turin-u2404os 6.8.0-45-generic #45-Ubuntu SMP PREEMPT_DYNAMIC Fri Aug 30 12:02:04 UTC 2024
   x86_64 x86_64 x86_64 GNU/Linux

 ------------------------------------------------------------
 2. w
    16:37:35 up 24 min,  3 users,  load average: 0.24, 0.08, 0.02
   USER     TTY      FROM             LOGIN@   IDLE   JCPU   PCPU WHAT
   root     tty1     -                16:18   19:11   0.08s   ?    -bash
   root             172.31.22.108    16:18   24:32   0.00s  0.22s sshd: root@pts/0
   root             172.31.22.108    16:18   24:32   0.00s  0.06s sshd: root@notty

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

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## Platform Notes (Continued)

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

------------------------------------------------------------
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              6188693
  nofiles              1024
  vmemory(kbytes)      unlimited
  locks                unlimited
  rtprio               0

------------------------------------------------------------
5. sysinfo process ancestry
 /sbin/init
 SCREEN -S cpu
 /bin/bash
 /bin/bash
 runcpu --config amd_rate_aocc500_znver5_A1.cfg --tune base --reportable --iterations 2 intrate
 runcpu --configfile amd_rate_aocc500_znver5_A1.cfg --tune base --reportable --iterations 2 --runmode rate
   --tune base --size test:train:refrate intrate --nopreenv --note-preenv --logfile
   $SPEC/tmp/CPU2017.005/templogs/preenv.intrate.005.0.log --lognum 005.0 --from_runcpu 2
 specperl $SPEC/bin/sysinfo
$SPEC = /spec/cpu2017aocc5znver5A1

------------------------------------------------------------
6. /proc/cpuinfo
    model name      : AMD EPYC 9965 192-Core Processor
    vendor_id       : AuthenticAMD
    cpu family      : 26
    model           : 17
    stepping        : 0
    microcode       : 0xb101021
    bugs            : sysret_ss_attrs spectre_v1 spectre_v2 spec_store_bypass
    TLB size        : 192 4K pages
    cpu cores       : 192
    siblings        : 384
    2 physical ids (chips)
    768 processors (hardware threads)
    physical id 0: core ids 0-191
    physical id 1: core ids 0-191
    physical id 0: apicids 0-383
    physical id 1: apicids 512-895
  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
```

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## Platform Notes (Continued)

```
CPU op-mode(s):                  32-bit, 64-bit
Address sizes:                   52 bits physical, 57 bits virtual
Byte Order:                      Little Endian
CPU(s):                          768
On-line CPU(s) list:             0-767
Vendor ID:                       AuthenticAMD
BIOS Vendor ID:                  Advanced Micro Devices, Inc.
Model name:                      AMD EPYC 9965 192-Core Processor
BIOS Model name:                 AMD EPYC 9965 192-Core Processor                Unknown CPU @ 2.2GHz
BIOS CPU family:                 107
CPU family:                      26
Model:                           17
Thread(s) per core:              2
Core(s) per socket:              192
Socket(s):                       2
Stepping:                        0
Frequency boost:                 enabled
CPU(s) scaling MHz:              41%
CPU max MHz:                     3700.1951
CPU min MHz:                     1500.0000
BogoMIPS:                        4493.15
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 amd_lbr_v2 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 hw_pstate ssbd mba perfmon_v2
                                 ibrs ibpb stibp ibrs_enhanced vmmcall 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 cppc 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
Virtualization:                  AMD-V
L1d cache:                       18 MiB (384 instances)
L1i cache:                       12 MiB (384 instances)
L2 cache:                        384 MiB (384 instances)
L3 cache:                        768 MiB (24 instances)
NUMA node(s):                    8
NUMA node0 CPU(s):               0-47,384-431
NUMA node1 CPU(s):               48-95,432-479
NUMA node2 CPU(s):               96-143,480-527
NUMA node3 CPU(s):               144-191,528-575
NUMA node4 CPU(s):               192-239,576-623
NUMA node5 CPU(s):               240-287,624-671
NUMA node6 CPU(s):               288-335,672-719
NUMA node7 CPU(s):               336-383,720-767
Vulnerability Gather data sampling:  Not affected
Vulnerability Itlb multihit:     Not affected
```

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## Platform Notes (Continued)

```
  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; RSB filling; PBRSB-eIBRS Not affected; BHI Not affected
  Vulnerability Srbds:                 Not affected
  Vulnerability Tsx async abort:       Not affected

From lscpu --cache:
     NAME ONE-SIZE ALL-SIZE WAYS TYPE        LEVEL  SETS PHY-LINE COHERENCY-SIZE
     L1d       48K      18M   12 Data            1    64        1             64
     L1i       32K      12M    8 Instruction     1    64        1             64
     L2         1M     384M   16 Unified         2  1024        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.
  available: 8 nodes (0-7)
  node 0 cpus: 0-47,384-431
  node 0 size: 192883 MB
  node 0 free: 191024 MB
  node 1 cpus: 48-95,432-479
  node 1 size: 193503 MB
  node 1 free: 192883 MB
  node 2 cpus: 96-143,480-527
  node 2 size: 193503 MB
  node 2 free: 191662 MB
  node 3 cpus: 144-191,528-575
  node 3 size: 193460 MB
  node 3 free: 192782 MB
  node 4 cpus: 192-239,576-623
  node 4 size: 193503 MB
  node 4 free: 192655 MB
  node 5 cpus: 240-287,624-671
  node 5 size: 193503 MB
  node 5 free: 192892 MB
  node 6 cpus: 288-335,672-719
  node 6 size: 193503 MB
  node 6 free: 192871 MB
  node 7 cpus: 336-383,720-767
  node 7 size: 193383 MB
  node 7 free: 192702 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
```

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## Platform Notes (Continued)

```
    6:  32  32  32  32  12  12  10  12
    7:  32  32  32  32  12  12  12  10

------------------------------------------------------------
9. /proc/meminfo
   MemTotal:       1584378100 kB

------------------------------------------------------------
10. who -r
  run-level 5 Sep 23 16:15

------------------------------------------------------------
11. Systemd service manager version: systemd 255 (255.4-1ubuntu8)
  Default Target  Status
  graphical       degraded

------------------------------------------------------------
12. Failed units, from systemctl list-units --state=failed
    UNIT                                LOAD   ACTIVE SUB    DESCRIPTION
  * systemd-networkd-wait-online.service loaded failed failed Wait for Network to be Configured
  Legend: LOAD   -> Reflects whether the unit definition was properly loaded.
          ACTIVE -> The high-level unit activation state, i.e. generalization of SUB.
          SUB    -> The low-level unit activation state, values depend on unit type.
  1 loaded units listed.

------------------------------------------------------------
13. 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 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 ipmievd 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-sysext
                   systemd-time-wait-sync upower
  generated        openipmi
  indirect         systemd-sysupdate systemd-sysupdate-reboot uuidd
  masked           cryptdisks cryptdisks-early hwclock multipath-tools-boot screen-cleanup sudo x11-common

------------------------------------------------------------
14. Linux kernel boot-time arguments, from /proc/cmdline
  BOOT_IMAGE=/boot/vmlinuz-6.8.0-45-generic
  root=UUID=4677930d-c853-459b-a8a2-9718e07a7af8
  ro

------------------------------------------------------------
15. cpupower frequency-info
  analyzing CPU 372:
    current policy: frequency should be within 1.50 GHz and 2.25 GHz.
                    The governor "schedutil" may decide which speed to use
```

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## Platform Notes (Continued)

```
                    within this range.
     boost state support:
       Supported: yes
       Active: yes
       Boost States: 0
       Total States: 3
       Pstate-P0:  38800MHz

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

------------------------------------------------------------
17. /sys/kernel/mm/transparent_hugepage
  defrag          [always] defer defer+madvise madvise never
  enabled         [always] madvise never
  hpage_pmd_size  2097152
  shmem_enabled   always within_size advise [never] deny force

------------------------------------------------------------
18. /sys/kernel/mm/transparent_hugepage/khugepaged
  alloc_sleep_millisecs   60000
  defrag                      1
  max_ptes_none             511
  max_ptes_shared           256
  max_ptes_swap              64
  pages_to_scan            4096
  scan_sleep_millisecs    10000

------------------------------------------------------------
19. OS release
  From /etc/*-release /etc/*-version
  os-release Ubuntu 24.04 LTS

------------------------------------------------------------
20. Disk information
SPEC is set to: /spec/cpu2017aocc5znver5A1
  Filesystem     Type  Size  Used Avail Use% Mounted on
  /dev/nvme0n1p2 ext4  457G   30G  404G   7% /
```

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## Platform Notes (Continued)

```
------------------------------------------------------------
21. /sys/devices/virtual/dmi/id
    Vendor:         Supermicro
    Product:        AS -2126HS-TN
    Product Family: SMC H14
    Serial:         S920464X4819696

------------------------------------------------------------
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 SK Hynix HMCG94AHBRA277N 64 GB 2 rank 6400, configured at 5200


------------------------------------------------------------
23. BIOS
(This section combines info from /sys/devices and dmidecode.)
   BIOS Vendor:       American Megatrends International, LLC.
   BIOS Version:      1.1
   BIOS Date:         09/09/2024
   BIOS Revision:     5.35
```

## Compiler Version Notes

```
==============================================================================================================
C       | 500.perlbench_r(base) 502.gcc_r(base) 505.mcf_r(base) 525.x264_r(base) 557.xz_r(base)
--------------------------------------------------------------------------------------------------------------
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++     | 520.omnetpp_r(base) 523.xalancbmk_r(base) 531.deepsjeng_r(base) 541.leela_r(base)
--------------------------------------------------------------------------------------------------------------
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 | 548.exchange2_r(base)
--------------------------------------------------------------------------------------------------------------
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
--------------------------------------------------------------------------------------------------------------
```

## Base Compiler Invocation

C benchmarks:
clang

C++ benchmarks:
clang++

Fortran benchmarks:
flang

## Base Portability Flags

500.perlbench_r: -DSPEC_LINUX_X64 -DSPEC_LP64
502.gcc_r: -DSPEC_LP64
505.mcf_r: -DSPEC_LP64
520.omnetpp_r: -DSPEC_LP64
523.xalancbmk_r: -DSPEC_LINUX -DSPEC_LP64
525.x264_r: -DSPEC_LP64
531.deepsjeng_r: -DSPEC_LP64
541.leela_r: -DSPEC_LP64
548.exchange2_r: -DSPEC_LP64
557.xz_r: -DSPEC_LP64

## Base Optimization Flags

C benchmarks:
-m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-ldist-scalar-expand -fenable-aggressive-gather
-Wl,-mllvm -Wl,-extra-inliner -z muldefs -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 -lamdlibm -lflang
-lamdalloc-ext -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,-do-block-reorder=advanced -z muldefs -O3 -march=znver5

**(Continued on next page)**

## Base Optimization Flags (Continued)

C++ benchmarks (continued):
-fveclib=AMDLIBM -ffast-math -flto -mllvm -unroll-threshold=100
-mllvm -loop-unswitch-threshold=200000
-mllvm -reduce-array-computations=3 -zopt -fno-PIE -no-pie
-fvirtual-function-elimination -fvisibility=hidden
-mllvm -do-block-reorder=advanced -lamdlibm -lflang -lamdalloc-ext
-ldl

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 -z muldefs -O3 -march=znver5
-fveclib=AMDLIBM -ffast-math -flto
-fepilog-vectorization-of-inductions -mllvm -optimize-strided-mem-cost
-floop-transform -mllvm -unroll-aggressive -mllvm -unroll-threshold=500
-lamdlibm -lflang -lamdalloc -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

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2017/flags/aocc500-flags.html
http://www.spec.org/cpu2017/flags/Supermicro-Platform-Settings-V1.2-Turin-revC.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2017/flags/aocc500-flags.xml
http://www.spec.org/cpu2017/flags/Supermicro-Platform-Settings-V1.2-Turin-revC.xml

## Supermicro

## Hyper A+ Server AS -2126HS-TN (H14DSH , AMD EPYC 9965)

| | |
|---|---|
| SPECrate®2017_int_base = | 2410 |
| SPECrate®2017_int_energy_base = | 2450 |
| SPECrate®2017_int_peak = | Not Run |
| SPECrate®2017_int_energy_peak = | Not Run |

**CPU2017 License:** 001176
**Test Sponsor:** Supermicro
**Tested by:** Supermicro

**Test Date:** Sep-2024
**Hardware Availability:** Oct-2024
**Software Availability:** Oct-2024



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

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