



SPEC CPU®2017 Integer Rate Result

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Supermicro

Mainstream A+ Server AS -1015A-MT (H13SAE-MF , AMD EPYC 4344P)

SPECrate®2017_int_base = 102

SPECrate®2017_int_energy_base = 843

SPECrate®2017_int_peak = 109

SPECrate®2017_int_energy_peak = 889

CPU2017 License: 001176

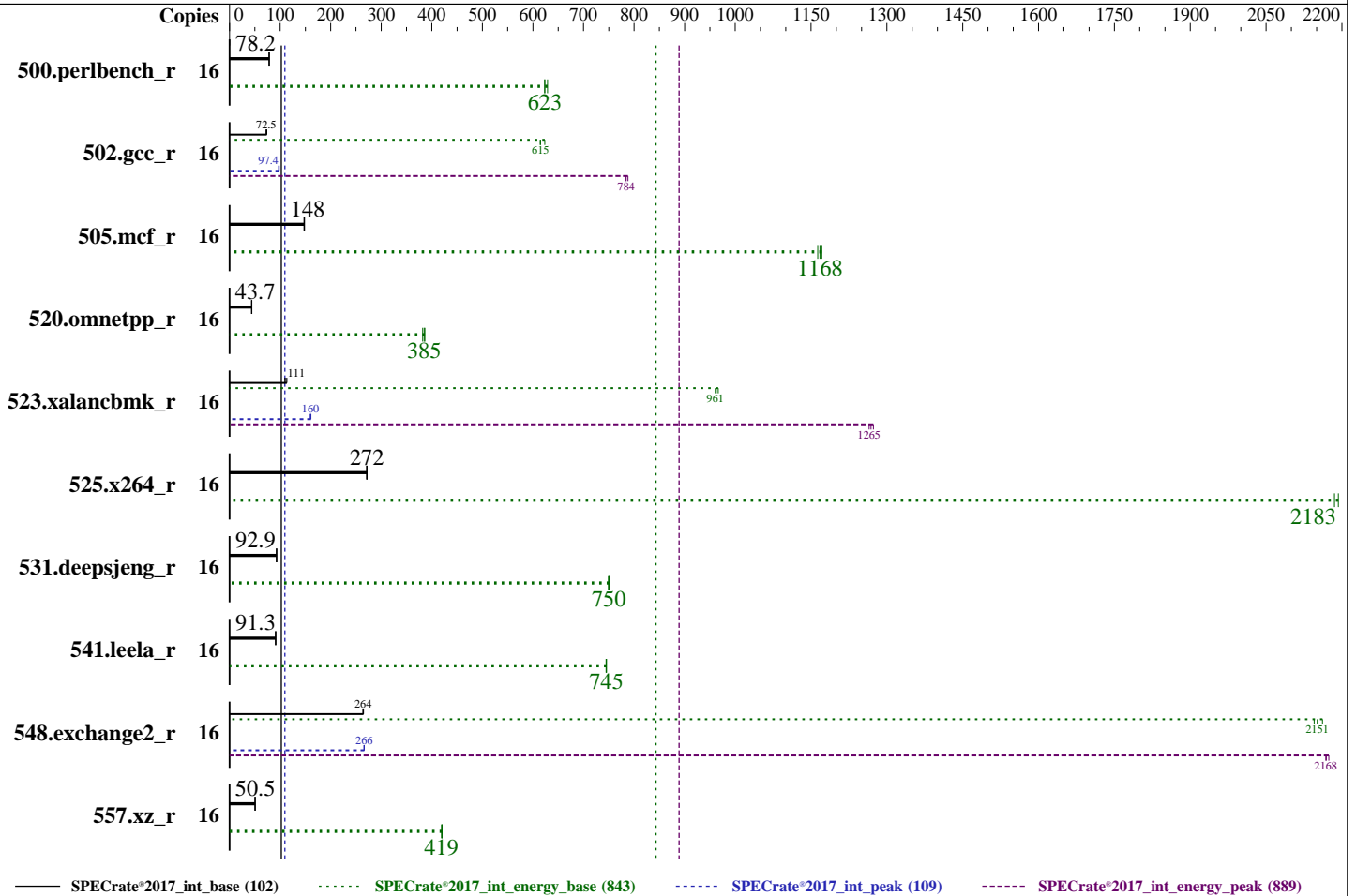
Test Sponsor: Supermicro

Tested by: Supermicro

Test Date: Jul-2024

Hardware Availability: May-2024

Software Availability: Jun-2024



Hardware

CPU Name: AMD EPYC 4344P
 Max MHz: 5300
 Nominal: 3800
 Enabled: 8 cores, 1 chip, 2 threads/core
 Orderable: 1 chip
 Cache L1: 32 KB I + 32 KB D on chip per core
 L2: 1 MB I+D on chip per core
 L3: 32 MB I+D on chip per chip
 Other: None
 Memory: 64 GB (2 x 32 GB 2Rx8 PC5-5200B-U)
 Storage: 1 x 500 GB NVMe SSD
 Other: CPU Cooling: Air

Software

OS: Ubuntu 22.04.3 LTS
 Kernel 6.5.0-44-generic
 Compiler: C/C++/Fortran: Version 4.0.0 of AOCC
 Parallel: No
 Firmware: Version 1.2a released Feb-2024
 File System: ext4
 System State: Run level 5 (multi-user)
 Base Pointers: 64-bit
 Peak Pointers: 32/64-bit
 Other: None
 Power Management: OS set to prefer performance at the cost of additional power usage.



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Power

Max. Power (W): 141.45
 Idle Power (W): 40.35
 Min. Temperature (C): 29.19
 Elevation (m): 132
 Line Standard: 220 V / 50 Hz / 1 phase / 3 wires
 Provisioning: Line-powered

Power Settings

Management FW: Version 01.01.04 of Supermicro BMC Firmware
 Memory Mode: Normal

Power-Relevant Hardware

Power Supply: 1 x 500 W (non-redundant)
 Details: Supermicro PWS-505P-1H
 Backplane: 1 x 500 GB NVMe SSD back plane
 Other Storage: None
 Storage Model #: Samsung SSD 980 Pro 500 GB
 NICs Installed: 2 x Intel I210 Gigabit Ethernet Controller @ 1 Gb
 NICs Enabled (FW/OS): 2 / 1
 NICs Connected/Speed: 1 @ 1 Gb
 Other HW Model #: 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: 1.11.0 (a4047d62; 2023-12-05)
 Setup Description: Connected to PSU 1
 Current Ranges Used: 2A
 Voltage Range Used: 300V

Temperature Meter

Temperature Meter: 10.216.139.174:8889
 Hardware Vendor: iButtonLink, Inc.
 Model: LinkUSBi + T-Probe
 Serial Number: USB-SERIAL CH340
 Input Connection: USB
 PTDaemon Version: 1.11.0 (a4047d62; 2023-12-05)
 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	16	325	78.4	43.9	629	135	139	326	78.2	44.3	623	136	139	326	78.2	44.3	623	136	140
502.gcc_r	16	308	73.6	39.5	623	128	140	312	72.5	40.0	615	128	141	313	72.4	40.0	614	128	141
505.mcf_r	16	176	147	24.3	1160	138	141	175	148	24.2	1170	139	141	174	148	24.2	1170	138	141
520.omnetpp_r	16	480	43.7	59.1	385	123	127	483	43.5	59.5	382	123	126	476	44.1	58.9	386	124	126
523.xalancbmk_r	16	152	111	19.0	961	126	140	155	109	19.0	963	123	141	149	113	18.9	966	127	141
525.x264_r	16	103	272	13.9	2180	135	138	103	272	13.8	2190	134	138	103	271	13.9	2190	134	137
531.deepsjeng_r	16	197	92.9	26.6	750	135	137	197	92.9	26.6	749	135	137	197	93.1	26.5	751	135	137
541.leela_r	16	290	91.3	38.5	745	133	135	290	91.3	38.5	745	133	135	291	90.9	38.5	745	132	134
548.exchange2_r	16	158	265	21.0	2160	133	134	159	264	21.1	2150	133	134	159	264	21.2	2150	133	134
557.xz_r	16	342	50.6	44.7	420	131	140	342	50.5	44.8	419	131	139	342	50.5	44.7	420	131	139

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Results appear in the order in which they were run. Bold underlined text indicates a median measurement.



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Peak 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	16	325	78.4	43.9	629	135	139	326	78.2	44.3	623	136	139	326	78.2	44.3	623	136	140
502.gcc_r	16	231	98.1	31.2	788	135	141	233	97.2	31.4	783	135	141	233	97.4	31.4	784	135	141
505.mcf_r	16	176	147	24.3	1160	138	141	175	148	24.2	1170	139	141	174	148	24.2	1170	138	141
520.omnetpp_r	16	480	43.7	59.1	385	123	127	483	43.5	59.5	382	123	126	476	44.1	58.9	386	124	126
523.xalanbmk_r	16	106	160	14.5	1260	137	140	105	161	14.4	1270	137	139	106	160	14.4	1270	136	139
525.x264_r	16	103	272	13.9	2180	135	138	103	272	13.8	2190	134	138	103	271	13.9	2190	134	137
531.deepsjeng_r	16	197	92.9	26.6	750	135	137	197	92.9	26.6	749	135	137	197	93.1	26.5	751	135	137
541.leela_r	16	290	91.3	38.5	745	133	135	290	91.3	38.5	745	133	135	291	90.9	38.5	745	132	134
548.exchange2_r	16	157	266	20.9	2170	133	134	158	266	20.9	2170	133	134	157	266	21.0	2170	133	134
557.xz_r	16	342	50.6	44.7	420	131	140	342	50.5	44.8	419	131	139	342	50.5	44.7	420	131	139

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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.



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Environment Variables Notes

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

```
LD_LIBRARY_PATH =
  "/home/amd/eceo/speccpu2017/amd_rate_aocc400_znver4_A_lib/lib:/home/amd/eceo/speccpu2017/amd_rate_aocc
  400_znver4_A_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

```
Sysinfo program /home/amd/eceo/speccpu2017/bin/sysinfo
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
running on amd-Super-Server Mon Jul 29 23:57:25 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 249 (249.11-0ubuntu3.12)
12. Services, from systemctl list-unit-files
13. Linux kernel boot-time arguments, from /proc/cmdline
14. cpupower frequency-info
15. sysctl
16. /sys/kernel/mm/transparent_hugepage
17. /sys/kernel/mm/transparent_hugepage/khugepaged
18. OS release
19. Disk information
20. /sys/devices/virtual/dmi/id
21. dmidecode

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Platform Notes (Continued)

22. BIOS

1. uname -a

```
Linux amd-Super-Server 6.5.0-44-generic #44~22.04.1-Ubuntu SMP PREEMPT_DYNAMIC Tue Jun 18 14:36:16 UTC 2
x86_64 x86_64 x86_64 GNU/Linux
```

2. w

```
23:57:25 up 4:16, 4 users, load average: 0.00, 0.05, 2.13
USER      TTY      FROM          LOGIN@      IDLE        JCPU   PCPU   WHAT
amd       :1       :1            19:40       ?xdm?      4:00    0.00s /usr/libexec/gdm-x-session --run-script env
GNOME_SHELL_SESSION_MODE=ubuntu /usr/bin/gnome-session --session=ubuntu
amd       pts/1    -             19:40       12.00s    0.92s   0.05s sudo su
amd       pts/2    10.98.35.118  23:54       29.00s    0.01s   0.02s sshd: amd [priv]
amd       pts/3    10.98.35.118  23:54       29.00s    0.00s   0.01s sudo su
```

3. Username

```
From environment variable $USER: root
From the command 'logname': amd
```

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             253413
nofiles             1024
vmemory(kbytes)     unlimited
locks               unlimited
rtprio              0
```

5. sysinfo process ancestry

```
/sbin/init splash
/lib/systemd/systemd --user
/usr/libexec/gnome-terminal-server
bash
sudo su
sudo su
su
bash
python3 ./run_amd_rate_aocc400_znver4_A1.py
/bin/bash ./amd_rate_aocc400_znver4_A1.sh
runcpu --config amd_rate_aocc400_znver4_A1.cfg --tune all --reportable --iterations 3 intrate
runcpu --configfile amd_rate_aocc400_znver4_A1.cfg --tune all --reportable --iterations 3 --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/amd/eceo/speccpu2017
```

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Platform Notes (Continued)

```

6. /proc/cpuinfo
model name      : AMD EPYC 4344P 8-Core Processor
vendor_id      : AuthenticAMD
cpu family     : 25
model          : 97
stepping       : 2
microcode      : 0xa601206
bugs           : sysret_ss_attrs spectre_v1 spectre_v2 spec_store_bypass srso
TLB size      : 3584 4K pages
cpu cores     : 8
siblings      : 16
1 physical ids (chips)
16 processors (hardware threads)
physical id 0: core ids 0-7
physical id 0: apicids 0-15

```

Caution: /proc/cpuinfo data regarding chips, cores, and threads is not necessarily reliable, especially for virtualized systems. Use the above data carefully.

7. lscpu

From lscpu from util-linux 2.37.2:

```

Architecture:          x86_64
CPU op-mode(s):        32-bit, 64-bit
Address sizes:         48 bits physical, 48 bits virtual
Byte Order:            Little Endian
CPU(s):                16
On-line CPU(s) list:  0-15
Vendor ID:             AuthenticAMD
Model name:            AMD EPYC 4344P 8-Core Processor
CPU family:            25
Model:                 97
Thread(s) per core:   2
Core(s) per socket:   8
Socket(s):             1
Stepping:              2
CPU max MHz:           5389.0000
CPU min MHz:           400.0000
BogoMIPS:              7585.55
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 sse4_1 sse4_2
                      movbe popcnt aes xsave avx fl6c 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 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 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 rdpid
                      overflow_recov succor smca flush_l1d

```

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Platform Notes (Continued)

```

Virtualization:                AMD-V
L1d cache:                     256 KiB (8 instances)
L1i cache:                     256 KiB (8 instances)
L2 cache:                      8 MiB (8 instances)
L3 cache:                      32 MiB (1 instance)
NUMA node(s):                  1
NUMA node0 CPU(s):             0-15
Vulnerability Gather data sampling: 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 Retbleed:        Not affected
Vulnerability Spec rstack overflow: Mitigation; Safe RET
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; Enhanced / Automatic IBRS; IBPB conditional; STIBP
                                always-on; RSB filling; PBRSE-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	32K	256K	8	Data	1	64	1	64
L1i	32K	256K	8	Instruction	1	64	1	64
L2	1M	8M	8	Unified	2	2048	1	64
L3	32M	32M	16	Unified	3	32768	1	64

8. numactl --hardware

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

```

available: 1 nodes (0)
node 0 cpus: 0-15
node 0 size: 63428 MB
node 0 free: 61734 MB
node distances:
node 0
0: 10

```

9. /proc/meminfo

MemTotal: 64950988 kB

10. who -r

run-level 5 Jul 29 19:40

11. Systemd service manager version: systemd 249 (249.11-0ubuntu3.12)

```

Default Target Status
graphical running

```

12. Services, from systemctl list-unit-files

```

STATE UNIT FILES
enabled ModemManager NetworkManager NetworkManager-dispatcher NetworkManager-wait-online

```

(Continued on next page)



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Platform Notes (Continued)

```

accounts-daemon anacron apparmor avahi-daemon binfmt-support bluetooth console-setup cron
cups cups-browsed dmesg e2scrub_reap getty@ gpu-manager grub-common grub-initrd-fallback
hv-fcopy-daemon hv-kvp-daemon hv-vss-daemon irqbalance kerneloops keyboard-setup
networkd-dispatcher nvme-fc-boot-connections nvme-autoconnect openvpn power-profiles-daemon
rsyslog secureboot-db setvtrgb snapd ssh switcheroo-control systemd-oomd systemd-pstore
systemd-resolved systemd-timesyncd thermald ua-reboot-cmds ubuntu-advantage udisks2 ufw
unattended-upgrades wpa_supplicant
enabled-runtime netplan-ovs-cleanup systemd-fsck-root systemd-remount-fs
disabled acpid brltty console-getty debug-shell intel-sgx-load-module nftables openvpn-client@
openvpn-server@ openvpn@ rsync rtkit-daemon serial-getty@ speech-dispatcherd
systemd-boot-check-no-failures systemd-network-generator systemd-networkd
systemd-networkd-wait-online systemd-sysext systemd-time-wait-sync upower
wpa_supplicant-nl80211@ wpa_supplicant-wired@ wpa_supplicant@
generated apport speech-dispatcher
indirect saned@ spice-vdagentd uidd
masked alsa-utils cryptdisks cryptdisks-early hwclock pulseaudio-enable-autospawn rc rcS saned
screen-cleanup sudo x11-common

```

```

-----
13. Linux kernel boot-time arguments, from /proc/cmdline
BOOT_IMAGE=/boot/vmlinuz-6.5.0-44-generic
root=UUID=a6df9058-1d2e-4132-a213-1d96030e2b42
ro
quiet
splash
vt.handoff=7

```

```

-----
14. cpupower frequency-info
analyzing CPU 15:
  current policy: frequency should be within 400 MHz and 5.39 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: 2
    Pstate-P0: 3800MHz

```

```

-----
15. sysctl
kernel.numa_balancing          0
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

```

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```
vm.swappiness 1
vm.watermark_boost_factor 15000
vm.watermark_scale_factor 10
vm.zone_reclaim_mode 1
```

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

```
-----
17. /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
```

```
-----
18. OS release
From /etc/*-release /etc/*-version
os-release Ubuntu 22.04.3 LTS
```

```
-----
19. Disk information
SPEC is set to: /home/amd/eceo/speccpu2017
Filesystem Type Size Used Avail Use% Mounted on
/dev/nvme0n1p2 ext4 457G 33G 402G 8% /
```

```
-----
20. /sys/devices/virtual/dmi/id
Vendor: Supermicro
Product: Super Server
Product Family: Family
Serial: 0123456789
```

```
-----
21. 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:
2x NO DIMM NO DIMM
2x Unknown CT32G52C42U5.M16G1 32 GB 2 rank 5200
```

```
-----
22. BIOS
(This section combines info from /sys/devices and dmidecode.)
BIOS Vendor: American Megatrends International, LLC.
BIOS Version: 1.2a
BIOS Date: 02/15/2024
```

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SPEC CPU®2017 Integer Rate Result

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

Test Date: Jul-2024
Hardware Availability: May-2024
Software Availability: Jun-2024

Platform Notes (Continued)

BIOS Revision: 5.32

Compiler Version Notes

=====
C | 502.gcc_r(peak)
=====

AMD clang version 14.0.6 (CLANG: AOCC_4.0.0-Build#434 2022_10_28) (based on LLVM Mirror.Version.14.0.6)
Target: i386-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-4.0.0/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#434 2022_10_28) (based on LLVM Mirror.Version.14.0.6)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-4.0.0/bin
=====

=====
C | 502.gcc_r(peak)
=====

AMD clang version 14.0.6 (CLANG: AOCC_4.0.0-Build#434 2022_10_28) (based on LLVM Mirror.Version.14.0.6)
Target: i386-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-4.0.0/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#434 2022_10_28) (based on LLVM Mirror.Version.14.0.6)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-4.0.0/bin
=====

=====
C++ | 523.xalancbmk_r(peak)
=====

AMD clang version 14.0.6 (CLANG: AOCC_4.0.0-Build#434 2022_10_28) (based on LLVM Mirror.Version.14.0.6)
Target: i386-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-4.0.0/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#434 2022_10_28) (based on LLVM Mirror.Version.14.0.6)

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Tested by: Supermicro

Test Date: Jul-2024
Hardware Availability: May-2024
Software Availability: Jun-2024

Compiler Version Notes (Continued)

Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-4.0.0/bin

C++ | 523.xalancbmk_r(peak)

AMD clang version 14.0.6 (CLANG: AOCC_4.0.0-Build#434 2022_10_28) (based on LLVM Mirror.Version.14.0.6)
Target: i386-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-4.0.0/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#434 2022_10_28) (based on LLVM Mirror.Version.14.0.6)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-4.0.0/bin

Fortran | 548.exchange2_r(base, peak)

AMD clang version 14.0.6 (CLANG: AOCC_4.0.0-Build#434 2022_10_28) (based on LLVM Mirror.Version.14.0.6)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-4.0.0/bin

Base Compiler Invocation

C benchmarks:
clang

C++ benchmarks:
clang++

Fortran benchmarks:
flang

Base Portability Flags

500.perlbench_r: -DSPEC_LINUX_X64 -DSPEC_LP64

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Base Portability Flags (Continued)

```
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 -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
```



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Base Other Flags

C benchmarks:

-Wno-unused-command-line-argument

C++ benchmarks:

-Wno-unused-command-line-argument

Fortran benchmarks:

-Wno-unused-command-line-argument

Peak Compiler Invocation

C benchmarks:

clang

C++ benchmarks:

clang++

Fortran benchmarks:

flang

Peak Portability Flags

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:

(Continued on next page)



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Tested by: Supermicro

Test Date: Jul-2024
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Software Availability: Jun-2024

Peak Optimization Flags (Continued)

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: basepeak = yes

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
```



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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/v119/aocc4/znver4/rate/amd_rate_aocc400_znver4_A_lib/lib32

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/v119/aocc4/znver4/rate/amd_rate_aocc400_znver4_A_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-A1.2.html>

<http://www.spec.org/cpu2017/flags/Supermicro-Platform-Settings-V1.2-AM5-revA.html>

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

<http://www.spec.org/cpu2017/flags/aocc400-flags-A1.2.xml>

<http://www.spec.org/cpu2017/flags/Supermicro-Platform-Settings-V1.2-AM5-revA.xml>

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