



SPEC CPU® 2017 Floating Point Speed Result

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Tyrone Systems
(Test Sponsor: Netweb Pte Ltd)
(Tyrone Camarero SDA200A2N-18)
(2.4 GHz, AMD EPYC 9654)

SPECspeed®2017_fp_base = 354

SPECspeed®2017_fp_peak = 351

CPU2017 License: 6042

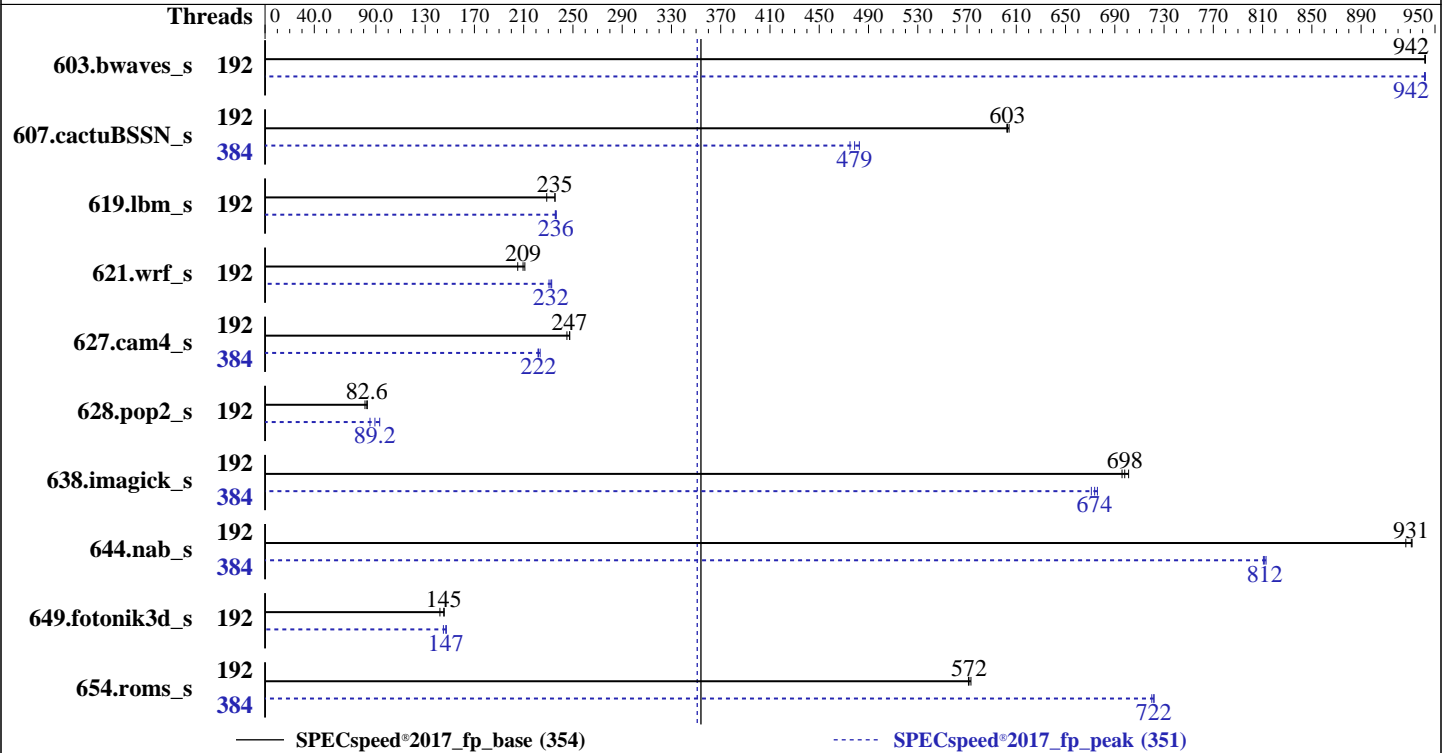
Test Sponsor: Netweb Pte Ltd

Tested by: Tyrone Systems

Test Date: Sep-2023

Hardware Availability: Jun-2023

Software Availability: Sep-2023



Hardware

CPU Name: AMD EPYC 9654
 Max MHz: 3700
 Nominal: 2400
 Enabled: 192 cores, 2 chips, 2 threads/core
 Orderable: 1,2 chips
 Cache L1: 32 KB I + 32 KB D on chip per core
 L2: 1 MB I+D on chip per core
 L3: 384 MB I+D on chip per chip, 32 MB shared / 8 cores
 Other: None
 Memory: 1 TB (16 x 64 GB 2Rx4 PC5-4800B-R)
 Storage: 1 x 960 GB NVMe
 Other: None

Software

OS: Ubuntu 20.04.4 LTS
 kernel version 5.15.0-83-generic
 Compiler: C/C++/Fortran: Version 4.0.0 of AOCC
 Parallel: Yes
 Firmware: Version 1.4 released Apr-2023
 File System: ext4
 System State: Run level 5 (multi-user)
 Base Pointers: 64-bit
 Peak Pointers: 64-bit
 Other: None
 Power Management: BIOS set to prefer performance at the cost of additional power usage.



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Results Table

Benchmark	Base						Peak							
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
603.bwaves_s	192	62.6	942	62.7	942	62.6	942	192	62.7	942	62.6	942	62.7	942
607.cactuBSSN_s	192	27.7	603	27.7	602	27.6	604	384	35.1	475	34.8	479	34.5	483
619.lbm_s	192	22.3	235	22.2	235	22.9	229	192	22.2	236	22.2	236	22.2	236
621.wrf_s	192	63.1	209	62.7	211	64.5	205	192	57.0	232	56.8	233	57.4	231
627.cam4_s	192	36.2	245	35.8	247	35.8	247	384	40.0	222	39.9	222	39.7	223
628.pop2_s	192	143	83.0	144	82.6	146	81.2	192	139	85.2	133	89.2	128	93.1
638.imagick_s	192	20.6	701	20.7	696	20.7	698	384	21.3	676	21.5	671	21.4	674
644.nab_s	192	18.8	931	18.8	931	18.9	926	384	21.6	811	21.5	813	21.5	812
649.fotonik3d_s	192	62.8	145	62.7	145	64.2	142	192	62.9	145	61.9	147	62.1	147
654.roms_s	192	27.5	573	27.5	572	27.6	571	384	21.8	722	21.9	720	21.8	722

SPECSpeed®2017_fp_base = **354**

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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) 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:

```
GOMP_CPU_AFFINITY = "0-383"
LD_LIBRARY_PATH = "/home/cpu2017/amd_speed_aocc400_znver4_A_lib/lib:"
LIBOMP_NUM_HIDDEN_HELPER_THREADS = "0"
MALLOC_CONF = "oversize_threshold:0,retain:true"
OMP_DYNAMIC = "false"
OMP_SCHEDULE = "static"
OMP_STACKSIZE = "128M"
OMP_THREAD_LIMIT = "384"
```

Environment variables set by runcpu during the 603.bwaves_s peak run:
GOMP_CPU_AFFINITY = "0-191"

Environment variables set by runcpu during the 607.cactuBSSN_s peak run:
GOMP_CPU_AFFINITY = "0-383"

Environment variables set by runcpu during the 619.lbm_s peak run:
GOMP_CPU_AFFINITY = "0-191"

Environment variables set by runcpu during the 621.wrf_s peak run:
GOMP_CPU_AFFINITY = "0-191"

Environment variables set by runcpu during the 627.cam4_s peak run:
GOMP_CPU_AFFINITY = "0-383"

Environment variables set by runcpu during the 628.pop2_s peak run:
GOMP_CPU_AFFINITY = "0-191"

Environment variables set by runcpu during the 638.imagick_s peak run:
GOMP_CPU_AFFINITY = "0-383"

Environment variables set by runcpu during the 644.nab_s peak run:
GOMP_CPU_AFFINITY = "0-383"

Environment variables set by runcpu during the 649.fotonik3d_s peak run:
GOMP_CPU_AFFINITY = "0-191"
PGHPF_ZMEM = "yes"

Environment variables set by runcpu during the 654.roms_s peak run:
GOMP_CPU_AFFINITY = "0 192 1 193 2 194 3 195 4 196 5 197 6 198 7 199 8 200 9 201 10 202 11 203 12 204 13
205 14 206 15 207 16 208 17 209 18 210 19 211 20 212 21 213 22 214 23 215 24 216 25 217 26 218 27 219
28 220 29 221 30 222 31 223 32 224 33 225 34 226 35 227 36 228 37 229 38 230 39 231 40 232 41 233 42
234 43 235 44 236 45 237 46 238 47 239 48 240 49 241 50 242 51 243 52 244 53 245 54 246 55 247 56 248
57 249 58 250 59 251 60 252 61 253 62 254 63 255 64 256 65 257 66 258 67 259 68 260 69 261 70 262 71
263 72 264 73 265 74 266 75 267 76 268 77 269 78 270 79 271 80 272 81 273 82 274 83 275 84 276 85 277
86 278 87 279 88 280 89 281 90 282 91 283 92 284 93 285 94 286 95 287 96 288 97 289 98 290 99 291 100
292 101 293 102 294 103 295 104 296 105 297 106 298 107 299 108 300 109 301 110 302 111 303 112 304
113 305 114 306 115 307 116 308 117 309 118 310 119 311 120 312 121 313 122 314 123 315 124 316 125
317 126 318 127 319 128 320 129 321 130 322 131 323 132 324 133 325 134 326 135 327 136 328 137 329
138 330 139 331 140 332 141 333 142 334 143 335 144 336 145 337 146 338 147 339 148 340 149 341 150
342 151 343 152 344 153 345 154 346 155 347 156 348 157 349 158 350 159 351 160 352 161 353 162 354
163 355 164 356 165 357 166 358 167 359 168 360 169 361 170 362 171 363 172 364 173 365 174 366 175
367 176 368 177 369 178 370 179 371 180 372 181 373 182 374 183 375 184 376 185 377 186 378 187 379
188 380 189 381 190 382 191 383"



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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:
cTDP: 360
Determinism Slider set to Power
Package Power: 360
EDC: 400
ACPI SRAT L3 Cache as NUMA Domain: enabled
Memory interleaving: Disabled
4-link xGMI max speed: 16Gbps
Fan Speed: Maximum

Sysinfo program /home/cpu2017/bin/sysinfo
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
running on amd2-Super-Server Mon Sep 18 20:15:48 2023

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

Table of contents

- 1. uname -a
 - 2. w
 - 3. Username
 - 4. ulimit -a
 - 5. sysinfo process ancestry
 - 6. /proc/cpuinfo
 - 7. lscpu
 - 8. numactl --hardware
 - 9. /proc/meminfo
 - 10. who -r
 - 11. Systemd service manager version: systemd 245 (245.4-4ubuntu3.20)
 - 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. 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
 - 22. BIOS
-
- 1. uname -a
Linux amd2-Super-Server 5.15.0-83-generic #92~20.04.1-Ubuntu SMP Mon Aug 21 14:00:49 UTC 2023 x86_64 x86_64 x86_64 GNU/Linux

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Platform Notes (Continued)

```
-----
2. w
  20:15:48 up 4 days,  9:23,  2 users,  load average: 6.03, 8.02, 4.66
USER      TTY      FROM          LOGIN@      IDLE   JCPU   PCPU   WHAT
amd2      tty7     :0            Thu10       4days 12.85s 0.03s  /usr/libexec/gnome-session-binary --systemd
--systemd --session=ubuntu
amd2      tty2     -             Thu12       3:24m  2.41s  0.03s -bash
```

```
-----
3. Username
  From environment variable $USER:  root
  From the command 'logname':      amd2
```

```
-----
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            4126356
  nofiles            1024
  vmemory(kbytes)    unlimited
  locks              unlimited
  rtprio             0
```

```
-----
5. sysinfo process ancestry
  /sbin/init splash
  /bin/login -p --
  -bash
  sudo su
  su
  bash
  python3 ./run_amd_speed_aocc400_znver4_A1.py
  /bin/bash ./amd_speed_aocc400_znver4_A1.sh
  runcpu --config amd_speed_aocc400_znver4_A1.cfg --tune all --reportable --iterations 3 fpspeed
  runcpu --configfile amd_speed_aocc400_znver4_A1.cfg --tune all --reportable --iterations 3 --nopower
  --runmode speed --tune base:peak --size test:train:refspeed fpspeed --nopreenv --note-preenv --logfile
  $SPEC/tmp/CPU2017.002/templogs/preenv.fpspeed.002.0.log --lognum 002.0 --from_runcpu 2
  specperl $SPEC/bin/sysinfo
  $SPEC = /home/cpu2017
```

```
-----
6. /proc/cpuinfo
  model name      : AMD EPYC 9654 96-Core Processor
  vendor_id      : AuthenticAMD
  cpu family     : 25
  model          : 17
  stepping       : 1
  microcode      : 0xa10113e
  bugs           : sysret_ss_attrs spectre_v1 spectre_v2 spec_store_bypass
  TLB size       : 3584 4K pages
  cpu cores      : 96
  siblings       : 192
  2 physical ids (chips)
  384 processors (hardware threads)
```

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Platform Notes (Continued)

physical id 0: core ids 0-95
physical id 1: core ids 0-95
physical id 0: apicids 0-191
physical id 1: apicids 256-447

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

7. lscpu

From lscpu from util-linux 2.34:

```

Architecture:                x86_64
CPU op-mode(s):              32-bit, 64-bit
Byte Order:                   Little Endian
Address sizes:                52 bits physical, 57 bits virtual
CPU(s):                       384
On-line CPU(s) list:         0-383
Thread(s) per core:           2
Core(s) per socket:          96
Socket(s):                    2
NUMA node(s):                2
Vendor ID:                    AuthenticAMD
CPU family:                   25
Model:                        17
Model name:                   AMD EPYC 9654 96-Core Processor
Stepping:                     1
Frequency boost:              enabled
CPU MHz:                      1500.000
CPU max MHz:                  3707.8120
CPU min MHz:                  1500.0000
BogoMIPS:                     4799.66
Virtualization:               AMD-V
L1d cache:                    6 MiB
L1i cache:                    6 MiB
L2 cache:                     192 MiB
L3 cache:                     768 MiB
NUMA node0 CPU(s):           0-95,192-287
NUMA node1 CPU(s):           96-191,288-383
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 store bypass: Mitigation; Speculative Store Bypass disabled via prctl and seccomp
Vulnerability Spectre v1:     Mitigation; usercopy/swapgs barriers and __user pointer sanitization
Vulnerability Spectre v2:     Mitigation; Retpolines, IBPB conditional, IBRS_FW, STIBP always-on, RSB filling, PBRSE-eIBRS Not affected
Vulnerability Srbds:          Not affected
Vulnerability Tsx async abort: Not affected
Flags:                        fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov pat pse36
                                clflush mmx fxsr sse sse2 ht syscall nx mmxext fxsr_opt pdpe1gb rdtscp
                                lm constant_tsc rep_good nopl nonstop_tsc cpuid extd_apicid aperfmperf
                                rapl pni pclmulqdq monitor ssse3 fma cx16 pcid sse4_1 sse4_2 x2apic
                                movbe popcnt aes xsave avx f16c rdrand lahf_lm cmp_legacy svm extapic
                                cr8_legacy abm sse4a misalignsse 3dnowprefetch osvw ibs skinit wdt tce
                                topoext perfctr_core perfctr_nb bpext perfctr_llc mwaitx cpb cat_l3
                                cdp_l3 invpcid_single hw_pstate ssbd mba ibrs ibpb stibp vmmcall
                                fsgsbase bmi1 avx2 smep bmi2 erms invpcid cqm rdt_a avx512f avx512dq

```

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Platform Notes (Continued)

```
rdseed adx smap avx512ifma clflushopt clwb avx512cd sha_ni avx512bw
avx512vl xsaveopt xsavec xgetbv1 xsaves cqm_llc cqm_occup_llc
cqm_mbm_total cqm_mbm_local avx512_bf16 clzero irperf xsaveerptr rdpru
wbnoinvd amd_ppin cppc arat npt lbrv svm_lock nrip_save tsc_scale
vmcb_clean flushbyasid decodeassists pausefilter pftthreshold avic
v_vmsave_vmload vgif v_spec_ctrl avx512vbmi umip pku ospke avx512_vbmi2
gfni vaes vpclmulqdq avx512_vnni avx512_bitalg avx512_vpopcntdq la57
rdpid overflow_recov succor smca fsrm flush_l1d
```

From lscpu --cache:

NAME	ONE-SIZE	ALL-SIZE	WAYS	TYPE	LEVEL
L1d	32K	6M	8	Data	1
L1i	32K	6M	8	Instruction	1
L2	1M	192M	8	Unified	2
L3	32M	768M	16	Unified	3

8. numactl --hardware

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

```
available: 2 nodes (0-1)
node 0 cpus: 0-95,192-287
node 0 size: 515747 MB
node 0 free: 512219 MB
node 1 cpus: 96-191,288-383
node 1 size: 515916 MB
node 1 free: 511601 MB
node distances:
node 0 1
0: 10 32
1: 32 10
```

9. /proc/meminfo

```
MemTotal: 1056424324 kB
```

10. who -r

```
run-level 5 Sep 14 10:53
```

11. Systemd service manager version: systemd 245 (245.4-4ubuntu3.20)

```
Default Target Status
graphical degraded
```

12. Failed units, from systemctl list-units --state=failed

```
UNIT LOAD ACTIVE SUB DESCRIPTION
* fwupd-refresh.service loaded failed failed Refresh fwupd metadata and update motd
```

13. Services, from systemctl list-unit-files

```
STATE UNIT FILES
enabled ModemManager NetworkManager NetworkManager-dispatcher NetworkManager-wait-online
accounts-daemon anacron apparmor autovt@ avahi-daemon bluetooth console-setup cron cups
cups-browsed dmesg e2scrub_reap getty@ gpu-manager grub-common grub-initrd-fallback
irqbalance kerneloops keyboard-setup network-manager networkd-dispatcher ondemand openvpn
pppd-dns rsync rsyslog secureboot-db setvtrgb snapd sshd switcheroo-control syslog
systemd-pstore systemd-resolved systemd-timesyncd thermald ua-reboot-cmds udisks2 ufw
unattended-upgrades whoopsie wpa_supplicant
enabled-runtime netplan-ovs-cleanup systemd-fsck-root systemd-remount-fs
```

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Platform Notes (Continued)

```

disabled      acpid brltty console-getty debug-shell openvpn-client@ openvpn-server@ openvpn@
               rtkit-daemon serial-getty@ speech-dispatcher speech-dispatcherd
               systemd-boot-check-no-failures systemd-network-generator systemd-networkd
               systemd-networkd-wait-online systemd-time-wait-sync upower wpa_supplicant-nl80211@
               wpa_supplicant-wired@ wpa_supplicant@
generated     apport
indirect      display-manager lightdm saned@ spice-vdagent spice-vdagentd uidd
masked        alsa-utils cryptdisks cryptdisks-early hwclock pulseaudio-enable-autospawn rc rcS saned
               sudo x11-common

```

```

-----
14. Linux kernel boot-time arguments, from /proc/cmdline
BOOT_IMAGE=/boot/vmlinuz-5.15.0-83-generic
root=UUID=1ae71a13-cac0-48f6-b6e6-e15e5e687f57
ro
quiet
splash
vt.handoff=7

```

```

-----
15. 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

```

```

-----
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

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Platform Notes (Continued)

From /etc/*-release /etc/*-version
os-release Ubuntu 20.04.4 LTS

19. Disk information
SPEC is set to: /home/cpu2017
Filesystem Type Size Used Avail Use% Mounted on
/dev/nvme0n1p2 ext4 938G 18G 872G 2% /

20. /sys/devices/virtual/dmi/id
Vendor: Tyrone Systems
Product: Tyrone Camarero SDA200A2N-18
Product Family: SMC H13
Serial: A509935X3311011

21. dmidecode
Additional information from dmidecode 3.2 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.

22. BIOS
(This section combines info from /sys/devices and dmidecode.)
BIOS Vendor: American Megatrends International, LLC.
BIOS Version: 1.4
BIOS Date: 04/19/2023
BIOS Revision: 5.27

Compiler Version Notes

=====
C | 619.lbm_s(base, peak) 638.imagick_s(base, peak) 644.nab_s(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++, C, Fortran | 607.cactuBSSN_s(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
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
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

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Tyrone Systems
(Test Sponsor: Netweb Pte Ltd)
(Tyrone Camarero SDA200A2N-18)
(2.4 GHz, AMD EPYC 9654)

SPECspeed®2017_fp_base = 354
SPECspeed®2017_fp_peak = 351

CPU2017 License: 6042
Test Sponsor: Netweb Pte Ltd
Tested by: Tyrone Systems

Test Date: Sep-2023
Hardware Availability: Jun-2023
Software Availability: Sep-2023

Compiler Version Notes (Continued)

Fortran | 603.bwaves_s(base, peak) 649.fotonik3d_s(base, peak) 654.roms_s(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, C | 621.wrf_s(base, peak) 627.cam4_s(base, peak) 628.pop2_s(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
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

Fortran benchmarks:

flang

Benchmarks using both Fortran and C:

flang clang

Benchmarks using Fortran, C, and C++:

clang++ clang flang

Base Portability Flags

603.bwaves_s: -DSPEC_LP64
607.cactuBSSN_s: -DSPEC_LP64
619.lbm_s: -DSPEC_LP64
621.wrf_s: -DSPEC_CASE_FLAG -Mbyteswapio -DSPEC_LP64
627.cam4_s: -DSPEC_CASE_FLAG -DSPEC_LP64
628.pop2_s: -DSPEC_CASE_FLAG -Mbyteswapio -DSPEC_LP64
638.imagick_s: -DSPEC_LP64
644.nab_s: -DSPEC_LP64

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SPECspeed®2017_fp_base = 354

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CPU2017 License: 6042

Test Sponsor: Netweb Pte Ltd

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Test Date: Sep-2023

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Base Portability Flags (Continued)

649.fotonik3d_s: -DSPEC_LP64

654.roms_s: -DSPEC_LP64

Base Optimization Flags

C benchmarks:

```
-m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3 -O3 -march=znver4
-fveclib=AMDLIBM -ffast-math -fopenmp -flto -fstruct-layout=7
-mllvm -unroll-threshold=50 -mllvm -inline-threshold=1000
-freemap-arrays -fstrip-mining -mllvm -reduce-array-computations=3
-DSPEC_OPENMP -zopt -fopenmp=libomp -lomp -lamdlibm -lamdalloc
-lflang
```

Fortran benchmarks:

```
-m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-enable-X86-prefetching -DSPEC_OPENMP -O3 -march=znver4
-fveclib=AMDLIBM -ffast-math -fopenmp -flto -Mrecursive
-funroll-loops -mllvm -lsr-in-nested-loop
-mllvm -reduce-array-computations=3 -zopt -fopenmp=libomp -lomp
-lamdlibm -lamdalloc -lflang
```

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 -O3 -march=znver4
-fveclib=AMDLIBM -ffast-math -fopenmp -flto -fstruct-layout=7
-mllvm -unroll-threshold=50 -mllvm -inline-threshold=1000
-freemap-arrays -fstrip-mining -mllvm -reduce-array-computations=3
-DSPEC_OPENMP -zopt -Mrecursive -funroll-loops
-mllvm -lsr-in-nested-loop -fopenmp=libomp -lomp -lamdlibm -lamdalloc
-lflang
```

Benchmarks using Fortran, C, and C++:

```
-m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-x86-use-vzeroupper=false -O3 -march=znver4
-fveclib=AMDLIBM -ffast-math -fopenmp -flto -fstruct-layout=7
-mllvm -unroll-threshold=50 -mllvm -inline-threshold=1000
-freemap-arrays -fstrip-mining -mllvm -reduce-array-computations=3
-DSPEC_OPENMP -zopt -mllvm -unroll-threshold=100 -finline-aggressive
-mllvm -loop-unswitch-threshold=200000 -Mrecursive -funroll-loops
-mllvm -lsr-in-nested-loop -fopenmp=libomp -lomp -lamdlibm -lamdalloc
```

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Tyrone Systems

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(Tyrone Camarero SDA200A2N-18)

(2.4 GHz, AMD EPYC 9654)

SPECspeed®2017_fp_base = 354

SPECspeed®2017_fp_peak = 351

CPU2017 License: 6042

Test Sponsor: Netweb Pte Ltd

Tested by: Tyrone Systems

Test Date: Sep-2023

Hardware Availability: Jun-2023

Software Availability: Sep-2023

Base Optimization Flags (Continued)

Benchmarks using Fortran, C, and C++ (continued):

-lflang

Base Other Flags

C benchmarks:

-Wno-return-type -Wno-unused-command-line-argument

Fortran benchmarks:

-Wno-unused-command-line-argument

Benchmarks using both Fortran and C:

-Wno-return-type -Wno-unused-command-line-argument

Benchmarks using Fortran, C, and C++:

-Wno-return-type -Wno-unused-command-line-argument

Peak Compiler Invocation

C benchmarks:

clang

Fortran benchmarks:

flang

Benchmarks using both Fortran and C:

flang clang

Benchmarks using Fortran, C, and C++:

clang++ clang flang

Peak Portability Flags

Same as Base Portability Flags



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Tested by: Tyrone Systems

Test Date: Sep-2023
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Software Availability: Sep-2023

Peak Optimization Flags

C benchmarks:

```
619.lbm_s: -m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3 -Ofast
-march=znver4 -fveclib=AMDLIBM -ffast-math -fopenmp
-flto -fstruct-layout=9 -mllvm -unroll-threshold=50
-freemap-arrays -fstrip-mining
-mllvm -inline-threshold=1000
-mllvm -reduce-array-computations=3 -DSPEC_OPENMP -zopt
-fopenmp=libomp -lomp -lamdlibm -lamdalloc -lflang
```

638.imagick_s: Same as 619.lbm_s

```
644.nab_s: -m64 -Wl,-mllvm -Wl,-region-vectorize -Ofast
-march=znver4 -fveclib=AMDLIBM -ffast-math -fopenmp
-flto -fstruct-layout=9 -mllvm -unroll-threshold=50
-freemap-arrays -fstrip-mining
-mllvm -inline-threshold=1000
-mllvm -reduce-array-computations=3 -DSPEC_OPENMP -zopt
-fopenmp=libomp -lomp -lamdlibm -lamdalloc -lflang
```

Fortran benchmarks:

```
603.bwaves_s: -m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-enable-X86-prefetching -DSPEC_OPENMP
-Ofast -march=znver4 -fveclib=AMDLIBM -ffast-math
-fopenmp -Mrecursive -mllvm -reduce-array-computations=3
-fvector-transform -fscalar-transform -fopenmp=libomp
-lomp -lamdlibm -lamdalloc -lflang
```

```
649.fotonik3d_s: -m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-enable-X86-prefetching -DSPEC_OPENMP
-Ofast -march=znver4 -fveclib=AMDLIBM -ffast-math
-fopenmp -flto -Mrecursive
-mllvm -reduce-array-computations=3 -zopt -fopenmp=libomp
-lomp -lamdlibm -lamdalloc -lflang
```

654.roms_s: Same as 603.bwaves_s

Benchmarks using both Fortran and C:

```
621.wrf_s: -m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-enable-X86-prefetching -Ofast
```

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SPECspeed®2017_fp_peak = 351

CPU2017 License: 6042
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Test Date: Sep-2023
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Software Availability: Sep-2023

Peak Optimization Flags (Continued)

621.wrf_s (continued):

```
-march=znver4 -fveclib=AMDLIBM -ffast-math -fopenmp
-flto -fstruct-layout=9 -mllvm -unroll-threshold=50
-freemap-arrays -fstrip-mining
-mllvm -inline-threshold=1000
-mllvm -reduce-array-computations=3 -DSPEC_OPENMP -zopt
-O3 -Mrecursive -funroll-loops -mllvm -lsr-in-nested-loop
-fopenmp=libomp -lomp -lamdlibm -lamdalloc -lflang
```

```
627.cam4_s: -m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-enable-X86-prefetching -Ofast
-march=znver4 -fveclib=AMDLIBM -ffast-math -fopenmp
-flto -fstruct-layout=9 -mllvm -unroll-threshold=50
-freemap-arrays -fstrip-mining
-mllvm -inline-threshold=1000
-mllvm -reduce-array-computations=3 -DSPEC_OPENMP -zopt
-Mrecursive -fopenmp=libomp -lomp -lamdlibm -lamdalloc
-lflang
```

```
628.pop2_s: -m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-enable-X86-prefetching -Ofast
-march=znver4 -fveclib=AMDLIBM -ffast-math -fopenmp
-flto -fstruct-layout=9 -mllvm -unroll-threshold=50
-freemap-arrays -fstrip-mining
-mllvm -inline-threshold=1000
-mllvm -reduce-array-computations=3 -DSPEC_OPENMP -zopt
-Mrecursive -fvector-transform -fscalar-transform
-fopenmp=libomp -lomp -lamdlibm -lamdalloc -lflang
```

Benchmarks using Fortran, C, and C++:

```
-m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-x86-use-vzeroupper=false -Ofast -march=znver4
-fveclib=AMDLIBM -ffast-math -fopenmp -flto -fstruct-layout=9
-mllvm -unroll-threshold=50 -freemap-arrays -fstrip-mining
-mllvm -inline-threshold=1000 -mllvm -reduce-array-computations=3
-DSPEC_OPENMP -zopt -finline-aggressive -mllvm -unroll-threshold=100
-Mrecursive -fopenmp=libomp -lomp -lamdlibm -lamdalloc -lflang
```



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SPECspeed®2017_fp_base = 354

SPECspeed®2017_fp_peak = 351

CPU2017 License: 6042
Test Sponsor: Netweb Pte Ltd
Tested by: Tyrone Systems

Test Date: Sep-2023
Hardware Availability: Jun-2023
Software Availability: Sep-2023

Peak Other Flags

C benchmarks:
-Wno-return-type -Wno-unused-command-line-argument

Fortran benchmarks:
-Wno-unused-command-line-argument

Benchmarks using both Fortran and C:
-Wno-return-type -Wno-unused-command-line-argument

Benchmarks using Fortran, C, and C++:
-Wno-return-type -Wno-unused-command-line-argument

The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2017/flags/aocc400-flags.html>
<http://www.spec.org/cpu2017/flags/Tyrone-Platform-Settings-V1.2-Genoa-revC.html>

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

<http://www.spec.org/cpu2017/flags/aocc400-flags.xml>
<http://www.spec.org/cpu2017/flags/Tyrone-Platform-Settings-V1.2-Genoa-revC.xml>

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