



SPEC CPU®2017 Floating Point Rate Result

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Fujitsu

PRIMERGY RX2450 M2,
AMD EPYC 9555, 3.20 GHz

SPECrate®2017_fp_base = 1690

SPECrate®2017_fp_peak = Not Run

CPU2017 License: 19

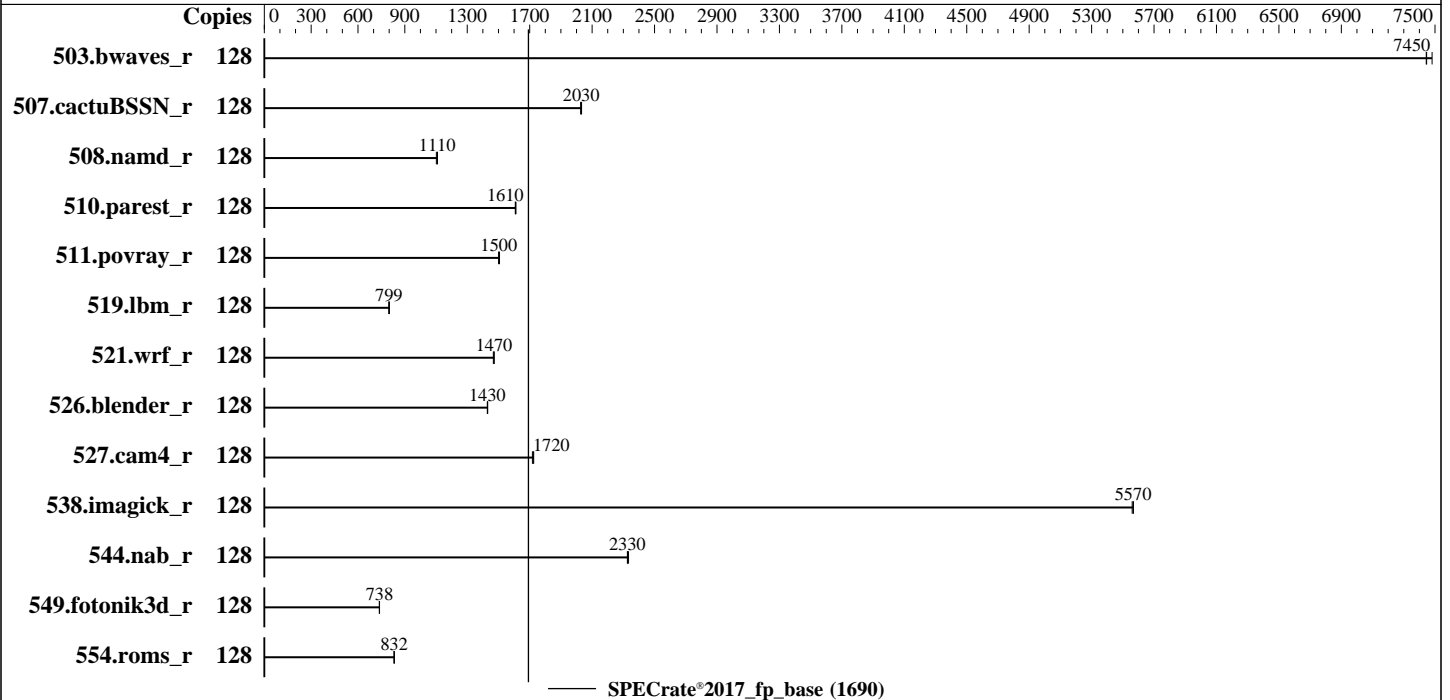
Test Sponsor: Fujitsu

Tested by: Fujitsu

Test Date: Nov-2024

Hardware Availability: Jan-2025

Software Availability: Sep-2024



Hardware

CPU Name: AMD EPYC 9555
 Max MHz: 4400
 Nominal: 3200
 Enabled: 128 cores, 2 chips
 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: 768 GB (24 x 32 GB 2Rx8 PC5-6400B-R, running at 6000)
 Storage: 1 x PCIE NVME SSD, 2 TB
 Other: CPU Cooling: Air

Software

OS: SUSE Linux Enterprise Server 15 SP6 kernel version 6.4.0-150600.21-default
 Compiler: C/C++/Fortran: Version 5.0.0 of AOCC
 Parallel: No
 Firmware: Fujitsu BIOS Version V5.0.0.35 R2.2.0 for D4129-A1x. Released Jan-2025 tested as V5.0.0.35 R9.90.0 for D4129-A1x Sep-2024
 File System: xfs
 System State: Run level 3 (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



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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	128	172	7480	<u>172</u>	<u>7450</u>	172	7440							
507.cactuBSSN_r	128	79.7	2030	<u>79.8</u>	<u>2030</u>	80.0	2030							
508.namd_r	128	<u>110</u>	<u>1110</u>	110	1100	110	1110							
510.parest_r	128	<u>208</u>	<u>1610</u>	208	1610	208	1610							
511.povray_r	128	198	1510	199	1500	<u>199</u>	<u>1500</u>							
519.lbm_r	128	169	798	168	801	<u>169</u>	<u>799</u>							
521.wrf_r	128	195	1470	195	1470	<u>195</u>	<u>1470</u>							
526.blender_r	128	136	1430	136	1430	<u>136</u>	<u>1430</u>							
527.cam4_r	128	<u>130</u>	<u>1720</u>	130	1720	130	1730							
538.imagick_r	128	57.2	5570	<u>57.2</u>	<u>5570</u>	57.3	5560							
544.nab_r	128	<u>92.6</u>	<u>2330</u>	92.6	2330	92.3	2330							
549.fotonik3d_r	128	676	738	677	737	<u>676</u>	<u>738</u>							
554.roms_r	128	244	832	245	832	<u>244</u>	<u>832</u>							

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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/Benchmark/specpcpu2017r-Turin/amd_rate_aocc500_znver5_A_lib/lib:/home/Benchmark/specpcpu2017r-Turin/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 configuration:
SMT control = Disabled
SVM Mode = Disabled
Determinism Slider = Power
TDP Control = Manual
TDP Limit = 400
Package Power Limit Control = Manual
Package Power Limit = 400
Power Profile Selection = High Performance
NUMA nodes per socket = NPS4
FAN Control = Full

```
Sysinfo program /home/Benchmark/specpcpu2017r-Turin/bin/sysinfo  
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197  
running on localhost Tue Nov 12 09:49:14 2024
```

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

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

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Platform Notes (Continued)

```

8. numactl --hardware
9. /proc/meminfo
10. who -r
11. Systemd service manager version: systemd 254 (254.10+suse.84.ge8d77af424)
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
22. BIOS

```

```

-----
1. uname -a
Linux localhost 6.4.0-150600.21-default #1 SMP PREEMPT_DYNAMIC Thu May 16 11:09:22 UTC 2024 (36c1e09)
x86_64 x86_64 x86_64 GNU/Linux

```

```

-----
2. w
09:49:14 up 2:10, 1 user, load average: 83.83, 116.70, 123.46
USER      TTY      FROM          LOGIN@   IDLE   JCPU   PCPU WHAT
root      tty1    -             07:42   2:06m  0.86s  0.11s /bin/bash ./amd_rate_aocc500_znver5_A1.sh

```

```

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

```

```

-----
4. ulimit -a
core file size          (blocks, -c) unlimited
data seg size           (kbytes, -d) unlimited
scheduling priority     (-e) 0
file size                (blocks, -f) unlimited
pending signals         (-i) 3090703
max locked memory       (kbytes, -l) 2097152
max memory size         (kbytes, -m) unlimited
open files              (-n) 65536
pipe size                (512 bytes, -p) 8
POSIX message queues    (bytes, -q) 819200
real-time priority      (-r) 0
stack size              (kbytes, -s) unlimited
cpu time                (seconds, -t) unlimited
max user processes      (-u) 3090703
virtual memory           (kbytes, -v) unlimited
file locks               (-x) unlimited

```

```

-----
5. sysinfo process ancestry
/usr/lib/systemd/systemd --switched-root --system --deserialize=42
login -- root
-bash
python3 ./run_amd_fprate_aocc500_znver5_A1_31.py
/bin/bash ./amd_rate_aocc500_znver5_A1.sh
runcpu --config amd_rate_aocc500_znver5_A1.cfg --tune base --reportable --iterations 3 fprate
runcpu --configfile amd_rate_aocc500_znver5_A1.cfg --tune base --reportable --iterations 3 --nopower

```

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Platform Notes (Continued)

```
--runmode rate --tune base --size test:train:refrate fprate --nopreenv --note-preenv --logfile
$SPEC/tmp/CPU2017.001/templogs/preenv.fprate.001.0.log --lognum 001.0 --from_runcpu 2
specperl $SPEC/bin/sysinfo
$SPEC = /home/Benchmark/speccpu2017r-Turin
```

6. /proc/cpuinfo

```
model name      : AMD EPYC 9555 64-Core Processor
vendor_id       : AuthenticAMD
cpu family      : 26
model           : 2
stepping        : 1
microcode       : 0xb002116
bugs            : sysret_ss_attrs spectre_v1 spectre_v2 spec_store_bypass
TLB size        : 192 4K pages
cpu cores       : 64
siblings        : 64
2 physical ids (chips)
128 processors (hardware threads)
physical id 0:  core ids 0-7,16-23,32-39,48-55,64-71,80-87,96-103,112-119
physical id 1:  core ids 0-7,16-23,32-39,48-55,64-71,80-87,96-103,112-119
physical id 0:  apicids 0-7,16-23,32-39,48-55,64-71,80-87,96-103,112-119
physical id 1:  apicids 128-135,144-151,160-167,176-183,192-199,208-215,224-231,240-247
```

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):                 128
On-line CPU(s) list:   0-127
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
BIOS CPU family:       107
CPU family:             26
Model:                  2
Thread(s) per core:    1
Core(s) per socket:    64
Socket(s):              2
Stepping:               1
Frequency boost:       enabled
CPU(s) scaling MHz:    74%
CPU max MHz:           4409.3750
CPU min MHz:           1500.0000
BogoMIPS:              6390.77
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 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
```

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Platform Notes (Continued)

```
ibrs ibpb stibp ibrs_enhanced 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
xsavc 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 vnni
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_lld debug_swap
```

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
NUMA node1 CPU(s): 16-31
NUMA node2 CPU(s): 32-47
NUMA node3 CPU(s): 48-63
NUMA node4 CPU(s): 64-79
NUMA node5 CPU(s): 80-95
NUMA node6 CPU(s): 96-111
NUMA node7 CPU(s): 112-127

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 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 disabled; 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	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
node 0 size: 95877 MB
node 0 free: 95169 MB
node 1 cpus: 16-31
node 1 size: 96763 MB
node 1 free: 95975 MB
node 2 cpus: 32-47
node 2 size: 96763 MB

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Platform Notes (Continued)

```

node 2 free: 96083 MB
node 3 cpus: 48-63
node 3 size: 96763 MB
node 3 free: 96106 MB
node 4 cpus: 64-79
node 4 size: 96763 MB
node 4 free: 95520 MB
node 5 cpus: 80-95
node 5 size: 96763 MB
node 5 free: 96107 MB
node 6 cpus: 96-111
node 6 size: 96725 MB
node 6 free: 96102 MB
node 7 cpus: 112-127
node 7 size: 96280 MB
node 7 free: 95609 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:      791246820 kB

```

```

-----
10. who -r
    run-level 3 Nov 12 07:42

```

```

-----
11. Systemd service manager version: systemd 254 (254.10+suse.84.ge8d77af424)
    Default Target   Status
    multi-user       running

```

```

-----
12. Services, from systemctl list-unit-files
STATE                               UNIT FILES
enabled                             YaST2-Firstboot YaST2-Second-Stage apparmor auditd cron display-manager getty@ irqbalance
                                     iscsi issue-generator kbdsettings kdump kdump-early kdump-notify klog lvm2-monitor nscd
                                     nvme-fc-boot-connections nvme-autoconnect postfix purge-kernels rollback rsyslog smartd
                                     sshd systemd-pstore virtqemu-wicked wickedd-auto4 wickedd-dhcp4 wickedd-dhcp6
                                     wickedd-nanny
enabled-runtime                      systemd-remount-fs
disabled                             autofo autoyast-initscripts blk-availability boot-sysctl ca-certificates chrony-wait
                                     chronyd console-getty cups cups-browsed debug-shell dnsmasq ebttables exchange-bmc-os-info
                                     firewallld fsidd gpm grub2-once haveged hwloc-dump-hwdata ipmi ipmievd iscsi-init iscsid
                                     issue-add-ssh-keys kexec-load ksm kvm_stat libvirt-guests lunmask man-db-create multipathd
                                     nfs nfs-blkmap nfs-server nfsserver rpcbind rpmconfigcheck rsyncd serial-getty@
                                     smartd_generate_opts snmpd snmptrapd strongswan strongswan-starter svnservice
                                     systemd-boot-check-no-failures systemd-confext systemd-network-generator systemd-nspawn@
                                     systemd-sysexec systemd-time-wait-sync systemd-timesyncd tcsd udisks2 virtinterfaced
                                     virtlockd virtlogd virtnetworkd virtnodevdev virtnwfilterd virtsecret d virtstoraged
                                     vncserver@
indirect                             pcsd systemd-userdbd tftp wickedd

```

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Platform Notes (Continued)

```
-----
13. Linux kernel boot-time arguments, from /proc/cmdline
BOOT_IMAGE=/boot/vmlinuz-6.4.0-150600.21-default
root=UUID=a6c544d9-3d7a-4bdf-8043-c3b78e6baa7c
splash=silent
resume=/dev/disk/by-uuid/49e80ffc-369d-4d77-944b-a98cd169ce13
mitigations=auto
quiet
security=apparmor
crashkernel=384M,high
crashkernel=72M,low
-----
```

```
-----
14. cpupower frequency-info
analyzing CPU 78:
  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
-----
```

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

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Platform Notes (Continued)

scan_sleep_millisecs 10000

18. OS release
From /etc/*-release /etc/*-version
os-release SUSE Linux Enterprise Server 15 SP6

19. Disk information
SPEC is set to: /home/Benchmark/speccpu2017r-Turin
Filesystem Type Size Used Avail Use% Mounted on
/dev/nvme1nlp3 xfs 1.1T 70G 998G 7% /home

20. /sys/devices/virtual/dmi/id
Vendor: FUJITSU
Product: PRIMERGY RX2450 M2
Product Family: SERVER
Serial: xxxxxxxxxx

21. dmidecode
Additional information from dmidecode 3.4 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:
7x Micron Technology MTC20F2085S1RC64BD2 MWWF 32 GB 2 rank 6400, configured at 6000
5x Micron Technology MTC20F2085S1RC64BD2 UXCC 32 GB 2 rank 6400, configured at 6000
12x Samsung M321R4GA3EB2-CCPKC 32 GB 2 rank 6400, configured at 6000

22. BIOS
(This section combines info from /sys/devices and dmidecode.)
BIOS Vendor: FUJITSU // American Megatrends Inc.
BIOS Version: V5.0.0.35 R9.90.0 for D4129-Alx
BIOS Date: 09/13/2024
BIOS Revision: 9.90
Firmware Revision: 2.45

Compiler Version Notes

=====
C | 519.lbm_r(base) 538.imagick_r(base) 544.nab_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++ | 508.namd_r(base) 510.parest_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

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AMD EPYC 9555, 3.20 GHz

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SPECrate®2017_fp_peak = Not Run

CPU2017 License: 19
Test Sponsor: Fujitsu
Tested by: Fujitsu

Test Date: Nov-2024
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Software Availability: Sep-2024

Compiler Version Notes (Continued)

=====
C++, C | 511.povray_r(base) 526.blender_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
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)
=====

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) 549.fotonik3d_r(base) 554.roms_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, C | 521.wrf_r(base) 527.cam4_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
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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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 -flto
-fstruct-layout=7 -mllvm -unroll-threshold=50

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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=200000 -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=200000 -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
```

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

<http://www.spec.org/cpu2017/flags/aocc500-flags.2024-10-10.00.html>

<http://www.spec.org/cpu2017/flags/Fujitsu-Platform-Settings-V1.0-Turin-RevB.html>

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

<http://www.spec.org/cpu2017/flags/aocc500-flags.2024-10-10.00.xml>

<http://www.spec.org/cpu2017/flags/Fujitsu-Platform-Settings-V1.0-Turin-RevB.xml>



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