



SPEC CPU®2017 Integer Rate Result

Copyright 2017-2025 Standard Performance Evaluation Corporation

Fujitsu

PRIMERGY RX2450 M2,
AMD EPYC 9555, 3.20 GHz

SPECrate®2017_int_base = 1600

SPECrate®2017_int_peak = Not Run

CPU2017 License: 19

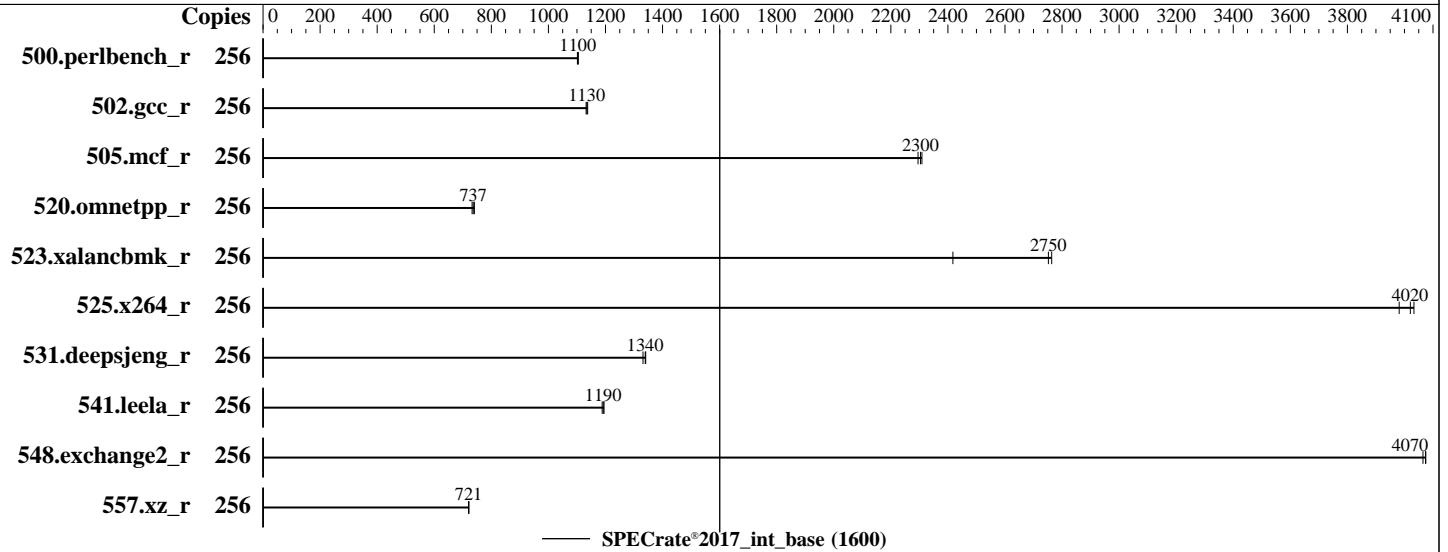
Test Sponsor: Fujitsu

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, 2 threads/core
 Orderable: 1,2 chips
 Cache L1: 32 KB I + 48 KB D on chip per core
 L2: 1 MB I+D on chip per core
 L3: 256 MB I+D on chip per chip, 32 MB shared / 8 cores
 Other: None
 Memory: 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
 C/C++/Fortran: Version 5.0.0 of AOCC
 Compiler: No
 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
500.perlbench_r	256	370	1100	369	1100	369	1100							
502.gcc_r	256	319	1130	320	1130	319	1140							
505.mcf_r	256	180	2300	180	2300	179	2310							
520.omnetpp_r	256	456	737	453	741	458	733							
523.xalancbmk_r	256	97.8	2760	112	2420	98.2	2750							
525.x264_r	256	113	3980	111	4030	111	4020							
531.deepsjeng_r	256	219	1340	220	1330	219	1340							
541.leela_r	256	356	1190	355	1200	357	1190							
548.exchange2_r	256	165	4070	165	4070	165	4060							
557.xz_r	256	384	720	384	721	383	721							

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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,
'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/Benchmark/speccpu2017r-Turin/amd_rate_aocc500_znver5_A_lib/lib:/home/Benchmark/speccpu2017r-Tur  
in/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:
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
Probe Filter Organization = Shared
Interleaving Region Size = 2K Region Size
FAN Control = Full

Sysinfo program /home/Benchmark/speccpu2017r-Turin/bin/sysinfo
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
running on localhost Sat Nov 9 10:35:19 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 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

(Continued on next page)



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Platform Notes (Continued)

- 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
10:35:19 up 2:24, 1 user, load average: 187.25, 238.02, 246.39
USER TTY FROM LOGIN@ IDLE JCPU PCPU WHAT
root tty1 - 08:16 2:17m 0.91s 0.13s /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) 3090423
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) 3090423
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_intrate_aocc500_znver5_A1_3l.py
/bin/bash ./amd_rate_aocc500_znver5_A1.sh
runcpu --config amd_rate_aocc500_znver5_A1.cfg --tune base --reportable --iterations 3 intrate
runcpu --configfile amd_rate_aocc500_znver5_A1.cfg --tune base --reportable --iterations 3 --nopower
--runmode rate --tune base --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/Benchmark/speccpu2017r-Turin
```

```
6. /proc/cpuinfo
model name : AMD EPYC 9555 64-Core Processor
```

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Platform Notes (Continued)

```
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      : 128
2 physical ids (chips)
256 processors (hardware threads)
physical id 0: core ids 0-63
physical id 1: core ids 0-63
physical id 0: apicids 0-127
physical id 1: apicids 128-255
```

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

7. lscpu

From lscpu from util-linux 2.39.3:

```
Architecture:          x86_64
CPU op-mode(s):        32-bit, 64-bit
Address sizes:         52 bits physical, 57 bits virtual
Byte Order:            Little Endian
CPU(s):                256
On-line CPU(s) list:   0-255
Vendor ID:              AuthenticAMD
BIOS Vendor ID:        Advanced Micro Devices, Inc.
Model name:            AMD EPYC 9555 64-Core Processor
BIOS Model name:       AMD EPYC 9555 64-Core Processor
BIOS CPU family:       107
CPU family:            26
Model:                  2
Thread(s) per core:    2
Core(s) per socket:    64
Socket(s):              2
Stepping:               1
Frequency boost:        enabled
CPU(s) scaling MHz:    73%
CPU max MHz:           4409.3750
CPU min MHz:           1500.0000
BogoMIPS:              6390.46
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 aperfperf 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
```

(Continued on next page)



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Platform Notes (Continued)

```

Virtualization:
L1d cache:
L1i cache:
L2 cache:
L3 cache:
NUMA node(s):
NUMA node0 CPU(s):
NUMA node1 CPU(s):
NUMA node2 CPU(s):
NUMA node3 CPU(s):
NUMA node4 CPU(s):
NUMA node5 CPU(s):
NUMA node6 CPU(s):
NUMA node7 CPU(s):
Vulnerability Gather data sampling:
Vulnerability Itlb multihit:
Vulnerability L1tf:
Vulnerability Mds:
Vulnerability Meltdown:
Vulnerability Mmio stale data:
Vulnerability Reg file data sampling:
Vulnerability Retbleed:
Vulnerability Spec rstack overflow:
Vulnerability Spec store bypass:
Vulnerability Spectre v1:
Vulnerability Spectre v2:
Vulnerability Srbds:
Vulnerability Tsx async abort:

```

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_llid debug_swap
AMD-V
6 MiB (128 instances)
4 MiB (128 instances)
128 MiB (128 instances)
512 MiB (16 instances)
8
0-15,128-143
16-31,144-159
32-47,160-175
48-63,176-191
64-79,192-207
80-95,208-223
96-111,224-239
112-127,240-255
Not affected
Not affected
Not affected
Not affected
Not affected
Not affected
Not affected
Not affected
Not affected
Not affected
Mitigation; Speculative Store Bypass disabled via prctl
Mitigation; usercopy/swapgs barriers and __user pointer sanitization
Mitigation; Enhanced / Automatic IBRS; IBPB conditional; STIBP
always-on; RSB filling; PBRSE-eIBRS Not affected; BHI Not affected
Not affected
Not affected

```

From lscpu --cache:
NAME ONE-SIZE ALL-SIZE WAYS TYPE LEVEL SETS PHY-LINE COHERENCY-SIZE
L1d 48K 6M 12 Data 1 64 1 64
L1i 32K 4M 8 Instruction 1 64 1 64
L2 1M 128M 16 Unified 2 1024 1 64
L3 32M 512M 16 Unified 3 32768 1 64

```

```

-----
8. numactl --hardware
NOTE: a numactl 'node' might or might not correspond to a physical chip.
available: 8 nodes (0-7)
node 0 cpus: 0-15,128-143
node 0 size: 95835 MB
node 0 free: 94506 MB
node 1 cpus: 16-31,144-159
node 1 size: 96759 MB
node 1 free: 95000 MB
node 2 cpus: 32-47,160-175
node 2 size: 96759 MB
node 2 free: 95631 MB
node 3 cpus: 48-63,176-191
node 3 size: 96759 MB
node 3 free: 95609 MB
node 4 cpus: 64-79,192-207
node 4 size: 96759 MB
node 4 free: 95650 MB

```

(Continued on next page)



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Platform Notes (Continued)

```

node 5 cpus: 80-95,208-223
node 5 size: 96759 MB
node 5 free: 95612 MB
node 6 cpus: 96-111,224-239
node 6 size: 96759 MB
node 6 free: 95565 MB
node 7 cpus: 112-127,240-255
node 7 size: 96239 MB
node 7 free: 95084 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:      791175288 kB

```

```

-----
10. who -r
    run-level 3 Nov 9 08:13

```

```

-----
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-fc-autoconnect postfix purge-kernels rollback rsyslog smartd
sshd systemd-pstore virtqemud wicked wickedd-auto4 wickedd-dhcp4 wickedd-dhcp6
wickedd-nanny
enabled-runtime systemd-remount-fs
disabled autofsd autofsd-initscripts blk-availability boot-sysctl ca-certificates chrony-wait
chronyd console-getty cups cups-browsed debug-shell dnsmasq ebttables exchange-bmc-os-info
firewalld 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 nfs-server rpcbind rpmconfigcheck rsyncd serial-getty@
smartd_generate_opts snmpd snmptrapd strongswan strongswan-starter svnserve
systemd-boot-check-no-failures systemd-confext systemd-network-generator systemd-nspawn@
systemd-sysext systemd-time-wait-sync systemd-timesyncd tcsd udisks2 virtinterfaced
virtlockd virtlogd virtnetworkd virtnodevdev virtnwfilterd virtsecret virtstoraged
vncserver@
indirect pcsd systemd-userdbd tftp wickedd

```

```

-----
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

```

(Continued on next page)



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Platform Notes (Continued)

```
mitigations=auto
quiet
security=apparmor
crashkernel=384M,high
crashkernel=72M,low
```

14. cpupower frequency-info

```
analyzing CPU 2:
  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
scan_sleep_millisecs  10000
```

18. OS release

```
From /etc/*-release /etc/*-version
os-release SUSE Linux Enterprise Server 15 SP6
```

(Continued on next page)



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Platform Notes (Continued)

19. Disk information

SPEC is set to: /home/Benchmark/speccpu2017r-Turin
Filesystem Type Size Used Avail Use% Mounted on
/dev/nvme0n1p3 xfs 1.1T 70G 998G 7% /home

20. /sys/devices/virtual/dmi/id

Vendor: FUJITSU
Product: PRIMERGY RX2450 M2
Product Family: SERVER
Serial: xxxxxxxxxxxx

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 MWFF 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 | 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

(Continued on next page)



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Software Availability: Sep-2024

Compiler Version Notes (Continued)

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

(Continued on next page)



SPEC CPU®2017 Integer Rate Result

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Fujitsu

PRIMERGY RX2450 M2,
AMD EPYC 9555, 3.20 GHz

SPECrate®2017_int_base = 1600

SPECrate®2017_int_peak = Not Run

CPU2017 License: 19

Test Sponsor: Fujitsu

Tested by: Fujitsu

Test Date: Nov-2024

Hardware Availability: Jan-2025

Software Availability: Sep-2024

Base Optimization Flags (Continued)

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
-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.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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