



SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL385 Gen11

(2.10 GHz, AMD EPYC 9845)

SPECrate®2017_int_base = 2470

SPECrate®2017_int_peak = 2540

CPU2017 License: 3

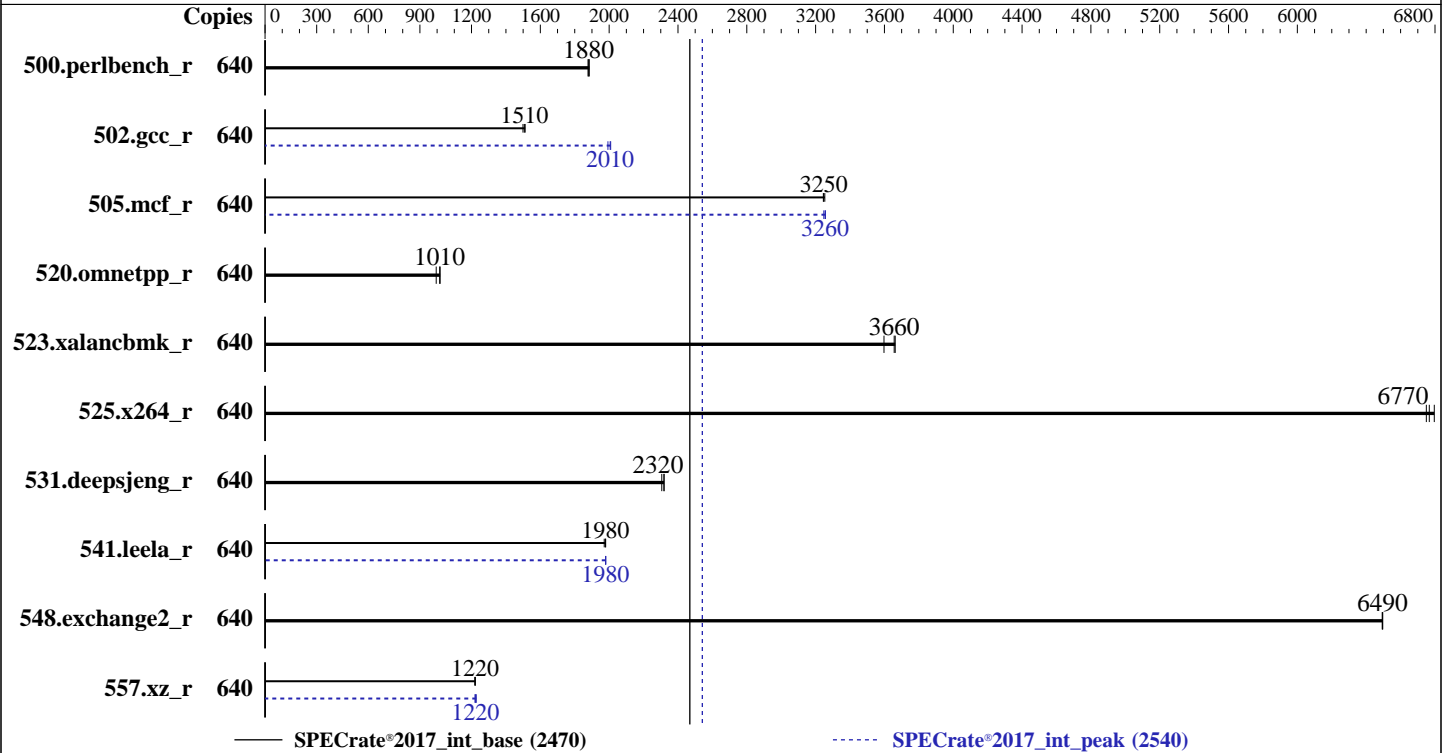
Test Sponsor: HPE

Tested by: HPE

Test Date: Sep-2024

Hardware Availability: Jan-2025

Software Availability: Sep-2024



Hardware

CPU Name: AMD EPYC 9845
 Max MHz: 3700
 Nominal: 2100
 Enabled: 320 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: 320 MB I+D on chip per chip,
 32 MB shared / 16 cores
 Other: None
 Memory: 1536 GB (24 x 64 GB 2Rx4 PC5-6400B-R,
 running at 6000)
 Storage: 1 x 480 GB SATA SSD
 Other: CPU Cooling: DLC

Software

OS: SUSE Linux Enterprise Server 15 SP6
 kernel 6.4.0-150600.21-default
 Compiler: C/C++/Fortran: Version 5.0.0 of AOCC
 Parallel: No
 Firmware: HPE BIOS Version v2.10 09/11/2024 released
 Sep-2024
 File System: btrfs
 System State: Run level 5 (multi-user)
 Base Pointers: 64-bit
 Peak Pointers: 32/64-bit
 Other: None
 Power Management: BIOS and OS set to prefer performance at
 the cost of additional power usage



SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL385 Gen11

(2.10 GHz, AMD EPYC 9845)

SPECrate®2017_int_base = 2470

SPECrate®2017_int_peak = 2540

CPU2017 License: 3
Test Sponsor: HPE
Tested by: HPE

Test Date: Sep-2024
Hardware Availability: Jan-2025
Software Availability: Sep-2024

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
500.perlbench_r	640	542	1880	543	1880	541	1880	640	542	1880	543	1880	541	1880
502.gcc_r	640	601	1510	599	1510	604	1500	640	451	2010	455	1990	452	2010
505.mcf_r	640	318	3250	319	3240	319	3250	640	318	3250	318	3260	318	3260
520.omnetpp_r	640	827	1010	844	995	825	1020	640	827	1010	844	995	825	1020
523.xalancbmk_r	640	185	3660	188	3600	185	3660	640	185	3660	188	3600	185	3660
525.x264_r	640	165	6800	166	6770	166	6750	640	165	6800	166	6770	166	6750
531.deepsjeng_r	640	316	2320	318	2310	316	2320	640	316	2320	318	2310	316	2320
541.leela_r	640	536	1980	535	1980	538	1970	640	535	1980	535	1980	535	1980
548.exchange2_r	640	258	6490	258	6500	258	6490	640	258	6490	258	6500	258	6490
557.xz_r	640	567	1220	566	1220	566	1220	640	563	1230	567	1220	565	1220

SPECrate®2017_int_base = 2470

SPECrate®2017_int_peak = 2540

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.
tuned service was stopped using "systemctl stop tuned"

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.



SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL385 Gen11

(2.10 GHz, AMD EPYC 9845)

SPECrate®2017_int_base = 2470

SPECrate®2017_int_peak = 2540

CPU2017 License: 3

Test Sponsor: HPE

Tested by: HPE

Test Date: Sep-2024

Hardware Availability: Jan-2025

Software Availability: Sep-2024

Environment Variables Notes

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

LD_LIBRARY_PATH =

"/home/cpu2017_new/amd_rate_aocc500_znver5_A_lib/lib:/home/cpu2017_new/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

Workload Profile set to General Throughput Compute

Determinism Control set to Manual

Performance Determinism set to Power Deterministic

Memory Patrol Scrubbing set to Disabled

NUMA memory domains per socket set to Two memory domains per socket

ACPI CST C2 Latency set to 18 microseconds

Thermal Configuration set to Maximum Cooling

AMD Periodic Directory Rinse set to Periodic

Workload Profile set to Custom

Power Regulator set to OS Control Mode

The reference code/AGESA version used in this ROM is version Turin-PI 1.0.0.0

Sysinfo program /home/cpu2017_new/bin/sysinfo

Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197

running on localhost Thu Sep 19 16:51:52 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. tuned-adm active

(Continued on next page)



SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL385 Gen11

(2.10 GHz, AMD EPYC 9845)

SPECrate®2017_int_base = 2470

SPECrate®2017_int_peak = 2540

CPU2017 License: 3
Test Sponsor: HPE
Tested by: HPE

Test Date: Sep-2024
Hardware Availability: Jan-2025
Software Availability: Sep-2024

Platform Notes (Continued)

```
16. sysctl
17. /sys/kernel/mm/transparent_hugepage
18. /sys/kernel/mm/transparent_hugepage/khugepaged
19. OS release
20. Disk information
21. /sys/devices/virtual/dmi/id
22. dmidecode
23. BIOS
```

```
1. uname -a
Linux localhost 6.4.0-150600.21-default #1 SMP PREEMPT_DYNAMIC Thu May 16 11:09:22 UTC 2024 (36cle09/1p)
x86_64 x86_64 x86_64 GNU/Linux
```

```
2. w
16:51:52 up 2 min, 3 users, load average: 1.07, 0.86, 0.37
USER      TTY      FROM          LOGIN@      IDLE        JCPU   PCPU WHAT
root      pts/0    10.30.195.96  16:50       1:02        1.21s  0.17s /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) 6189210
max locked memory       (kbytes, -l) 2097152
max memory size         (kbytes, -m) unlimited
open files              (-n) 1024
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) 6189210
virtual memory          (kbytes, -v) unlimited
file locks              (-x) unlimited
```

```
5. sysinfo process ancestry
/usr/lib/systemd/systemd --switched-root --system --deserialize=42
sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups
sshd: root [priv]
sshd: root@pts/0
-bash
python3 ./run_intrate.py
/bin/bash ./amd_rate_aocc500_znver5_A1.sh
runcpu --config amd_rate_aocc500_znver5_A1.cfg --tune all --reportable --iterations 3 intrate
runcpu --configfile amd_rate_aocc500_znver5_A1.cfg --tune all --reportable --iterations 3 --nopower
--runmode rate --tune base:peak --size test:train:refrate intrate --nopreenv --note-preenv --logfile
$SPEC/tmp/CPU2017.014/templogs/preenv.intrate.014.0.log --lognum 014.0 --from_runcpu 2
specperl $SPEC/bin/sysinfo
$SPEC = /home/cpu2017_new
```

(Continued on next page)



SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL385 Gen11

(2.10 GHz, AMD EPYC 9845)

SPECrate®2017_int_base = 2470

SPECrate®2017_int_peak = 2540

CPU2017 License: 3
Test Sponsor: HPE
Tested by: HPE

Test Date: Sep-2024
Hardware Availability: Jan-2025
Software Availability: Sep-2024

Platform Notes (Continued)

6. /proc/cpuinfo

```

model name      : AMD EPYC 9845 160-Core Processor
vendor_id      : AuthenticAMD
cpu family     : 26
model          : 17
stepping       : 0
microcode      : 0xb101021
bugs           : sysret_ss_attrs spectre_v1 spectre_v2 spec_store_bypass
TLB size      : 192 4K pages
cpu cores     : 160
siblings      : 320
2 physical ids (chips)
640 processors (hardware threads)
physical id 0: core ids 0-159
physical id 1: core ids 0-159
physical id 0: apicids 0-319
physical id 1: apicids 512-831

```

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):               640
On-line CPU(s) list: 0-639
Vendor ID:            AuthenticAMD
BIOS Vendor ID:      Advanced Micro Devices, Inc.
Model name:           AMD EPYC 9845 160-Core Processor
BIOS Model name:     AMD EPYC 9845 160-Core Processor
BIOS CPU family:     107
CPU family:           26
Model:                17
Thread(s) per core:  2
Core(s) per socket:  160
Socket(s):            2
Stepping:             0
Frequency boost:      enabled
CPU(s) scaling MHz:  100%
CPU max MHz:          2100.0000
CPU min MHz:          1500.0000
BogoMIPS:             4193.72
Flags:                fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov pat
                    pse36 clflush mmx fxsr sse sse2 ht syscall nx mmxext fxsr_opt pdpe1gb
                    rdtscp lm constant_tsc rep_good amd_lbr_v2 nopl nonstop_tsc cpuid
                    extd_apicid aperfmperf rapl pni pclmulqdq monitor ssse3 fma cx16 pcid
                    sse4_1 sse4_2 x2apic movbe popcnt aes xsave avx f16c rdrand lahf_lm
                    cmp_legacy svm extapic cr8_legacy abm sse4a misalignsse 3dnowprefetch
                    osvw ibs skinit wdt tce topoext perfctr_core perfctr_nb bpext
                    perfctr_llc mwaitx cpb cat_l3 cdp_l3 hw_pstate ssbd mba perfmon_v2
                    ibrs ibpb stibp ibrs_enhanced vmmcall fsgsbase tsc_adjust bmi1 avx2
                    smep bmi2 erms invpcid cqm rdt_a avx512f avx512dq rdseed adx smap
                    avx512ifma clflushopt clwb avx512cd sha_ni avx512bw avx512vl xsaveopt
                    xsavec xgetbv1 xsaves cqm_llc cqm_occup_llc cqm_mbm_total
                    cqm_mbm_local user_shstk avx_vnni avx512_bf16 clzero irperf

```

(Continued on next page)



SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL385 Gen11

(2.10 GHz, AMD EPYC 9845)

SPECrate®2017_int_base = 2470

SPECrate®2017_int_peak = 2540

CPU2017 License: 3
Test Sponsor: HPE
Tested by: HPE

Test Date: Sep-2024
Hardware Availability: Jan-2025
Software Availability: Sep-2024

Platform Notes (Continued)

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 vmmi
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

Virtualization: AMD-V
L1d cache: 15 MiB (320 instances)
L1i cache: 10 MiB (320 instances)
L2 cache: 320 MiB (320 instances)
L3 cache: 640 MiB (20 instances)
NUMA node(s): 4
NUMA node0 CPU(s): 0-79,320-399
NUMA node1 CPU(s): 80-159,400-479
NUMA node2 CPU(s): 160-239,480-559
NUMA node3 CPU(s): 240-319,560-639
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/swaps barriers and __user pointer sanitization
Vulnerability Spectre v2: Mitigation; Enhanced / Automatic IBRS; IBPB conditional; STIBP
always-on; RSB filling; PBRBS-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	15M	12	Data	1	64	1	64
L1i	32K	10M	8	Instruction	1	64	1	64
L2	1M	320M	16	Unified	2	1024	1	64
L3	32M	640M	16	Unified	3	32768	1	64

8. numactl --hardware

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

available: 4 nodes (0-3)
node 0 cpus: 0-79,320-399
node 0 size: 386518 MB
node 0 free: 385482 MB
node 1 cpus: 80-159,400-479
node 1 size: 386991 MB
node 1 free: 385665 MB
node 2 cpus: 160-239,480-559
node 2 size: 387030 MB
node 2 free: 386453 MB
node 3 cpus: 240-319,560-639
node 3 size: 386791 MB
node 3 free: 385933 MB
node distances:
node 0 1 2 3
0: 10 12 32 32
1: 12 10 32 32

(Continued on next page)



SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL385 Gen11

(2.10 GHz, AMD EPYC 9845)

SPECrate®2017_int_base = 2470

SPECrate®2017_int_peak = 2540

CPU2017 License: 3
Test Sponsor: HPE
Tested by: HPE

Test Date: Sep-2024
Hardware Availability: Jan-2025
Software Availability: Sep-2024

Platform Notes (Continued)

```
2: 32 32 10 12
3: 32 32 12 10
```

```
9. /proc/meminfo
MemTotal: 1584468856 kB
```

```
10. who -r
run-level 5 Sep 19 16:49
```

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

```
12. Services, from systemctl list-unit-files
STATE UNIT FILES
enabled ModemManager YaST2-Firstboot YaST2-Second-Stage apparmor appstream-sync-cache auditd
bluetooth cron display-manager getty@ irqbalance issue-generator kbdsettings klog
lvm2-monitor nscd postfix purge-kernels rollback rsyslog smartd sshd systemd-pstore wickd
wickedd-auto4 wickedd-dhcp4 wickedd-dhcp6 wickedd-nanny wpa_supplicant
enabled-runtime systemd-remount-fs
disabled NetworkManager NetworkManager-dispatcher NetworkManager-wait-online accounts-daemon autofs
autoyast-initscripts blk-availability bluetooth-mesh 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
issue-add-ssh-keys kexec-load lunmask man-db-create multipathd nfs nfs-blkmap nmb openvpn@
ostree-remount rpcbind rpmconfigcheck rsyncd rtkit-daemon serial-getty@
smartd_generate_opts smb snmpd snmptrapd speech-dispatcherd systemd-boot-check-no-failures
systemd-confext systemd-network-generator systemd-sysext systemd-time-wait-sync
systemd-timesyncd tuned udisks2 update-system-flatpaks upower vncserver@ wpa_supplicant@
indirect pcsd saned@ systemd-userdbd wickedd
```

```
13. Linux kernel boot-time arguments, from /proc/cmdline
BOOT_IMAGE=/boot/vmlinuz-6.4.0-150600.21-default
root=UUID=9579ceda-034d-4a9c-a590-lac3c83e5f78
splash=silent
mitigations=auto
quiet
security=apparmor
```

```
14. cpupower frequency-info
analyzing CPU 441:
current policy: frequency should be within 1.50 GHz and 2.10 GHz.
The governor "performance" may decide which speed to use
within this range.
boost state support:
Supported: yes
Active: yes
```

```
15. tuned-adm active
It seems that tuned daemon is not running, preset profile is not activated.
Preset profile: throughput-performance
```

(Continued on next page)



SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL385 Gen11

(2.10 GHz, AMD EPYC 9845)

SPECrate®2017_int_base = 2470

SPECrate®2017_int_peak = 2540

CPU2017 License: 3
Test Sponsor: HPE
Tested by: HPE

Test Date: Sep-2024
Hardware Availability: Jan-2025
Software Availability: Sep-2024

Platform Notes (Continued)

16. sysctl

```

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

```

17. /sys/kernel/mm/transparent_hugepage

```

defrag      [always] defer defer+madvise madvise never
enabled     [always] madvise never
hpage_pmd_size 2097152
shmem_enabled always within_size advise [never] deny force

```

18. /sys/kernel/mm/transparent_hugepage/khugepaged

```

alloc_sleep_millisecs 60000
defrag                 1
max_ptes_none         511
max_ptes_shared       256
max_ptes_swap         64
pages_to_scan         4096
scan_sleep_millisecs 10000

```

19. OS release

```

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

```

20. Disk information

SPEC is set to: /home/cpu2017_new

```

Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sdd2       btrfs 447G 154G 291G 35% /home

```

21. /sys/devices/virtual/dmi/id

```

Vendor:      HPE
Product:     ProLiant DL385 Gen11
Product Family: ProLiant
Serial:      DL385G11-003

```

22. 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

(Continued on next page)



SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL385 Gen11

(2.10 GHz, AMD EPYC 9845)

SPECrate®2017_int_base = 2470

SPECrate®2017_int_peak = 2540

CPU2017 License: 3
Test Sponsor: HPE
Tested by: HPE

Test Date: Sep-2024
Hardware Availability: Jan-2025
Software Availability: Sep-2024

Platform Notes (Continued)

determined", but the intent may not be met, as there are frequent changes to hardware, firmware, and the "DMTF SMBIOS" standard.

Memory:

24x Hynix HMCG94AHBRA480N 64 GB 2 rank 6400, configured at 6000

23. BIOS

(This section combines info from /sys/devices and dmidecode.)

BIOS Vendor: HPE
BIOS Version: 2.10
BIOS Date: 09/11/2024
BIOS Revision: 2.10
Firmware Revision: 1.61

Compiler Version Notes

C | 502.gcc_r(peak)

AMD clang version 17.0.6 (CLANG: AOCC_5.0.0-Build#1316 2024_09_09)
Target: i386-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-5.0.0-4925-1316/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 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 | 502.gcc_r(peak)

AMD clang version 17.0.6 (CLANG: AOCC_5.0.0-Build#1316 2024_09_09)
Target: i386-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-5.0.0-4925-1316/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 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, peak) 523.xalancbmk_r(base, peak) 531.deepsjeng_r(base, peak)
| 541.leela_r(base, peak)

(Continued on next page)



SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL385 Gen11

(2.10 GHz, AMD EPYC 9845)

SPECrate®2017_int_base = 2470

SPECrate®2017_int_peak = 2540

CPU2017 License: 3

Test Sponsor: HPE

Tested by: HPE

Test Date: Sep-2024

Hardware Availability: Jan-2025

Software Availability: Sep-2024

Compiler Version Notes (Continued)

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, peak)

AMD clang version 17.0.6 (CLANG: AOCC_5.0.0-Build#1316 2024_09_09)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-5.0.0-4925-1316/bin

Base Compiler Invocation

C benchmarks:

clang

C++ benchmarks:

clang++

Fortran benchmarks:

flang

Base Portability Flags

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

Base Optimization Flags

C benchmarks:

-m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3

(Continued on next page)



SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL385 Gen11

(2.10 GHz, AMD EPYC 9845)

SPECrate®2017_int_base = 2470

SPECrate®2017_int_peak = 2540

CPU2017 License: 3

Test Sponsor: HPE

Tested by: HPE

Test Date: Sep-2024

Hardware Availability: Jan-2025

Software Availability: Sep-2024

Base Optimization Flags (Continued)

C benchmarks (continued):

```
-Wl,-mllvm -Wl,-ldist-scalar-expand -fenable-aggressive-gather
-Wl,-mllvm -Wl,-extra-inliner -z muldefs -O3 -march=znver5
-fveclib=AMDLIBM -ffast-math -fno-PIE -no-pie -flto
-fstruct-layout=7 -mllvm -unroll-threshold=50
-mllvm -inline-threshold=1000 -fremap-arrays -fstrip-mining
-mllvm -reduce-array-computations=3 -zopt -lamdlibm -lflang
-lamdalloc-ext -ldl
```

C++ benchmarks:

```
-m64 -std=c++14 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-do-block-reorder=advanced -z muldefs -O3 -march=znver5
-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
```



SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL385 Gen11

(2.10 GHz, AMD EPYC 9845)

SPECrate®2017_int_base = 2470

SPECrate®2017_int_peak = 2540

CPU2017 License: 3

Test Sponsor: HPE

Tested by: HPE

Test Date: Sep-2024

Hardware Availability: Jan-2025

Software Availability: Sep-2024

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:

```
500.perlbench_r: basepeak = yes
```

```
502.gcc_r: -m32 -flto -Wl,-mllvm -Wl,-ldist-scalar-expand
-fenable-aggressive-gather -Wl,-mllvm -Wl,-extra-inliner
-z muldefs -Ofast -march=znver5 -fveclib=AMDLIBM
-ffast-math -fstruct-layout=7 -mllvm -unroll-threshold=50
-freemap-arrays -fstrip-mining
-mllvm -inline-threshold=1000
-mllvm -reduce-array-computations=3 -zopt -fgnu89-inline
-lamdalloc
```

```
505.mcf_r: -m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-extra-inliner -Ofast -march=znver5
-fveclib=AMDLIBM -ffast-math -flto -fstruct-layout=7
-mllvm -unroll-threshold=50 -freemap-arrays -fstrip-mining
```

(Continued on next page)



SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL385 Gen11

(2.10 GHz, AMD EPYC 9845)

SPECrate®2017_int_base = 2470

SPECrate®2017_int_peak = 2540

CPU2017 License: 3

Test Sponsor: HPE

Tested by: HPE

Test Date: Sep-2024

Hardware Availability: Jan-2025

Software Availability: Sep-2024

Peak Optimization Flags (Continued)

505.mcf_r (continued):

```
-mllvm -inline-threshold=1000
-mllvm -reduce-array-computations=3 -zopt -lamdlibm
-lflang -lamdalloc-ext -ldl
```

525.x264_r: basepeak = yes

```
557.xz_r: -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
-Ofast -march=znver5 -fveclib=AMDLIBM -ffast-math -flto
-fstruct-layout=7 -mllvm -unroll-threshold=50
-freemap-arrays -fstrip-mining
-mllvm -inline-threshold=1000
-mllvm -reduce-array-computations=3 -zopt -lamdlibm
-lflang -lamdalloc-ext -ldl
```

C++ benchmarks:

520.omnetpp_r: basepeak = yes

523.xalancbmk_r: basepeak = yes

531.deepsjeng_r: basepeak = yes

541.leela_r: -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 -Ofast
-march=znver5 -fveclib=AMDLIBM -ffast-math -flto
-mllvm -unroll-threshold=100
-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:

548.exchange2_r: basepeak = yes



SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL385 Gen11

(2.10 GHz, AMD EPYC 9845)

SPECrate®2017_int_base = 2470

SPECrate®2017_int_peak = 2540

CPU2017 License: 3

Test Sponsor: HPE

Tested by: HPE

Test Date: Sep-2024

Hardware Availability: Jan-2025

Software Availability: Sep-2024

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/aocc5/1316/amd_rate_aocc500_znver5_A_lib/lib32

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/HPE-Platform-Flags-AMD-Turin-rev1.0.html>

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

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

<http://www.spec.org/cpu2017/flags/HPE-Platform-Flags-AMD-Turin-rev1.0.xml>

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

SPEC CPU and SPECrate are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

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

Tested with SPEC CPU®2017 v1.1.9 on 2024-09-19 07:21:51-0400.

Report generated on 2024-10-10 21:05:52 by CPU2017 PDF formatter v6716.

Originally published on 2024-10-10.