



SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL325 Gen11

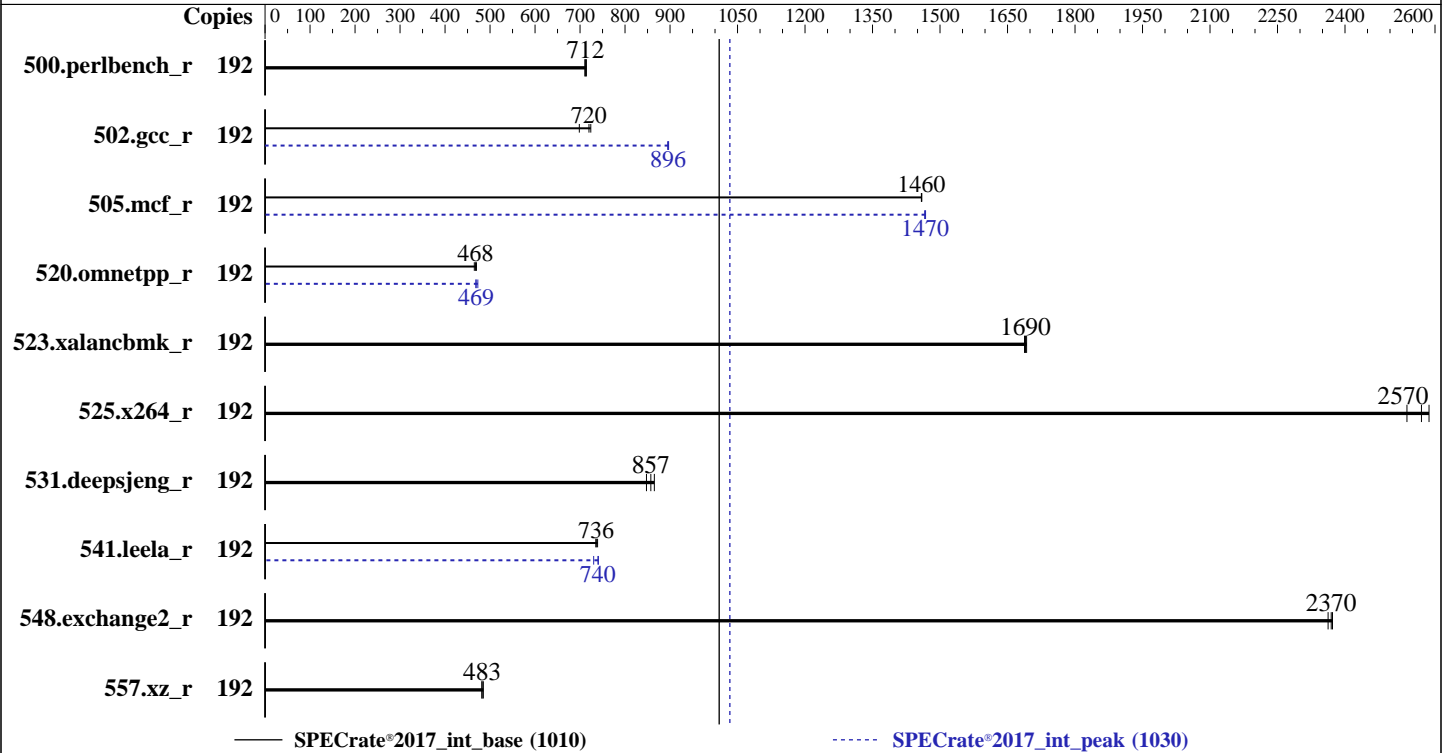
(2.60 GHz, AMD EPYC 9655P)

SPECrate®2017_int_base = 1010

SPECrate®2017_int_peak = 1030

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

Test Date: Oct-2024
Hardware Availability: Oct-2024
Software Availability: Sep-2024



Hardware

CPU Name: AMD EPYC 9655P
 Max MHz: 4500
 Nominal: 2600
 Enabled: 96 cores, 1 chip, 2 threads/core
 Orderable: 1 chip
 Cache L1: 32 KB I + 48 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: 384 GB (12 x 32 GB 2Rx8 PC5-6400B-R,
 running at 6000)
 Storage: 1 x 480 GB SATA SSD
 Other: CPU Cooling: CLC

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 3 (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 DL325 Gen11

(2.60 GHz, AMD EPYC 9655P)

SPECrate®2017_int_base = 1010

SPECrate®2017_int_peak = 1030

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

Test Date: Oct-2024
Hardware Availability: Oct-2024
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	192	428	714	430	711	429	712	192	428	714	430	711	429	712
502.gcc_r	192	378	720	389	698	376	724	192	304	895	303	896	303	897
505.mcf_r	192	213	1460	213	1460	213	1460	192	212	1470	211	1470	212	1470
520.omnetpp_r	192	542	465	536	470	539	468	192	538	469	537	469	533	473
523.xalancbmk_r	192	120	1690	120	1690	120	1690	192	120	1690	120	1690	120	1690
525.x264_r	192	130	2590	131	2570	132	2540	192	130	2590	131	2570	132	2540
531.deepsjeng_r	192	257	857	254	865	260	848	192	257	857	254	865	260	848
541.leela_r	192	432	736	433	735	430	739	192	435	730	430	740	429	741
548.exchange2_r	192	213	2360	212	2370	212	2370	192	213	2360	212	2370	212	2370
557.xz_r	192	427	485	430	483	431	482	192	427	485	430	483	431	482

SPECrate®2017_int_base = **1010**

SPECrate®2017_int_peak = **1030**

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.



SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL325 Gen11

(2.60 GHz, AMD EPYC 9655P)

SPECrate®2017_int_base = 1010

SPECrate®2017_int_peak = 1030

CPU2017 License: 3

Test Sponsor: HPE

Tested by: HPE

Test Date: Oct-2024

Hardware Availability: Oct-2024

Software Availability: Sep-2024

Environment Variables Notes

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

LD_LIBRARY_PATH =

"/home/cpu2017/amd_rate_aocc500_znver5_A_lib/lib:/home/cpu2017/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 Four 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/bin/sysinfo

Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197

running on localhost Tue Oct 1 18:01:25 2024

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

Table of contents

1. uname -a
2. w
3. Username
4. ulimit -a
5. sysinfo process ancestry
6. /proc/cpuinfo
7. lscpu
8. numactl --hardware
9. /proc/meminfo
10. who -r
11. Systemd service manager version: systemd 254 (254.10+suse.84.ge8d77af424)
12. Services, from systemctl list-unit-files
13. Linux kernel boot-time arguments, from /proc/cmdline
14. sysctl
15. /sys/kernel/mm/transparent_hugepage
16. /sys/kernel/mm/transparent_hugepage/khugepaged

(Continued on next page)



SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL325 Gen11

(2.60 GHz, AMD EPYC 9655P)

SPECrate®2017_int_base = 1010

SPECrate®2017_int_peak = 1030

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

Test Date: Oct-2024
Hardware Availability: Oct-2024
Software Availability: Sep-2024

Platform Notes (Continued)

- 17. OS release
- 18. Disk information
- 19. /sys/devices/virtual/dmi/id
- 20. dmidecode
- 21. 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)
x86_64 x86_64 x86_64 GNU/Linux
```

```
2. w
18:01:25 up 1 min,  4 users,  load average: 9.69, 5.44, 2.09
USER      TTY      FROM          LOGIN@   IDLE   JCPU   PCPU   WHAT
```

```
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) 1546174
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) 1546174
virtual memory          (kbytes, -v) unlimited
file locks              (-x) unlimited
```

```
5. sysinfo process ancestry
/usr/lib/systemd/systemd --switched-root --system --deserialize=31
sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups
sshd: root [priv]
sshd: root@notty
bash -c cd $SPEC/ && $SPEC/intrate.sh
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/CPU2017.001/templogs/preenv.intrate.001.0.log --lognum 001.0 --from_runcpu 2
specperl $SPEC/bin/sysinfo
$SPEC = /home/cpu2017
```

```
6. /proc/cpuinfo
model name      : AMD EPYC 9655P 96-Core Processor
vendor_id      : AuthenticAMD
```

(Continued on next page)



SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL325 Gen11

(2.60 GHz, AMD EPYC 9655P)

SPECrate®2017_int_base = 1010

SPECrate®2017_int_peak = 1030

CPU2017 License: 3

Test Sponsor: HPE

Tested by: HPE

Test Date: Oct-2024

Hardware Availability: Oct-2024

Software Availability: Sep-2024

Platform Notes (Continued)

```

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       : 96
siblings        : 192
1 physical ids (chips)
192 processors (hardware threads)
physical id 0: core ids 0-95
physical id 0: apicids 0-191

```

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):                 192
On-line CPU(s) list:   0-191
Vendor ID:              AuthenticAMD
BIOS Vendor ID:        Advanced Micro Devices, Inc.
Model name:             AMD EPYC 9655P 96-Core Processor
BIOS Model name:       AMD EPYC 9655P 96-Core Processor
BIOS CPU family:       107
CPU family:             26
Model:                  2
Thread(s) per core:    2
Core(s) per socket:    96
Socket(s):              1
Stepping:               1
Frequency boost:        enabled
CPU(s) scaling MHz:    58%
CPU max MHz:            2600.0000
CPU min MHz:            1500.0000
BogoMIPS:               5192.29
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 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
                        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

```

(Continued on next page)



SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL325 Gen11

(2.60 GHz, AMD EPYC 9655P)

SPECrate®2017_int_base = 1010

SPECrate®2017_int_peak = 1030

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

Test Date: Oct-2024
Hardware Availability: Oct-2024
Software Availability: Sep-2024

Platform Notes (Continued)

```

flush_lld debug_swap
Virtualization: AMD-V
Lld cache: 4.5 MiB (96 instances)
Lli cache: 3 MiB (96 instances)
L2 cache: 96 MiB (96 instances)
L3 cache: 384 MiB (12 instances)
NUMA node(s): 4
NUMA node0 CPU(s): 0-23,96-119
NUMA node1 CPU(s): 24-47,120-143
NUMA node2 CPU(s): 48-71,144-167
NUMA node3 CPU(s): 72-95,168-191
Vulnerability Gather data sampling: Not affected
Vulnerability Itlb multihit: Not affected
Vulnerability Lltf: 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; PBRBSB-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
Lld	48K	4.5M	12	Data	1	64	1	64
Lli	32K	3M	8	Instruction	1	64	1	64
L2	1M	96M	16	Unified	2	1024	1	64
L3	32M	384M	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: 0-23,96-119
node 0 size: 96435 MB
node 0 free: 95893 MB
node 1 cpus: 24-47,120-143
node 1 size: 96755 MB
node 1 free: 96360 MB
node 2 cpus: 48-71,144-167
node 2 size: 96755 MB
node 2 free: 95697 MB
node 3 cpus: 72-95,168-191
node 3 size: 96622 MB
node 3 free: 95767 MB
node distances:
node  0  1  2  3
0:  10  12  12  12
1:  12  10  12  12
2:  12  12  10  12
3:  12  12  12  10

```

9. /proc/meminfo

MemTotal: 395846064 kB

(Continued on next page)



SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL325 Gen11

(2.60 GHz, AMD EPYC 9655P)

SPECrate®2017_int_base = 1010

SPECrate®2017_int_peak = 1030

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

Test Date: Oct-2024
Hardware Availability: Oct-2024
Software Availability: Sep-2024

Platform Notes (Continued)

10. who -r
run-level 3 Oct 1 18:00

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 apparmor auditd cron getty@ irqbalance issue-generator kbdsettings postfix purge-kernels
rollback sshd systemd-pstore wicked wickedd-auto4 wickedd-dhcp4 wickedd-dhcp6
wickedd-nanny
enabled-runtime systemd-remount-fs
disabled boot-sysctl ca-certificates chrony-wait chronyd console-getty debug-shell grub2-once
haveged hwloc-dump-hwdata issue-add-ssh-keys kexec-load lunmask rpmconfigcheck
serial-getty@ systemd-boot-check-no-failures systemd-confext systemd-network-generator
systemd-sysext systemd-time-wait-sync systemd-timesyncd
indirect systemd-userdbd wickedd

13. Linux kernel boot-time arguments, from /proc/cmdline
BOOT_IMAGE=/boot/vmlinuz-6.4.0-150600.21-default
root=UUID=afb87990-79f2-4b68-8354-159842b8707a
splash=silent
resume=/dev/disk/by-uuid/b4efab66-b4ae-4508-8e74-4ce53ca827fe
mitigations=auto
quiet
security=apparmor

14. 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

15. /sys/kernel/mm/transparent_hugepage
defrag [always] defer defer+madvise madvise never
enabled [always] madvise never
hpage_pmd_size 2097152

(Continued on next page)



SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL325 Gen11

(2.60 GHz, AMD EPYC 9655P)

SPECrate®2017_int_base = 1010

SPECrate®2017_int_peak = 1030

CPU2017 License: 3

Test Sponsor: HPE

Tested by: HPE

Test Date: Oct-2024

Hardware Availability: Oct-2024

Software Availability: Sep-2024

Platform Notes (Continued)

shmem_enabled always within_size advise [never] deny force

16. /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

```

17. OS release

```

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

```

18. Disk information

SPEC is set to: /home/cpu2017

```

Filesystem Type Size Used Avail Use% Mounted on
/dev/sdb3 btrfs 407G 6.9G 398G 2% /home

```

19. /sys/devices/virtual/dmi/id

```

Vendor: HPE
Product: ProLiant DL325 Gen11
Product Family: ProLiant
Serial: DL325G11-004

```

20. 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:

12x Hynix HMC88AHBRA471N 32 GB 2 rank 6400, configured at 6000

21. 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: 1.63

```

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

```

(Continued on next page)



SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL325 Gen11

(2.60 GHz, AMD EPYC 9655P)

SPECrate®2017_int_base = 1010

SPECrate®2017_int_peak = 1030

CPU2017 License: 3

Test Sponsor: HPE

Tested by: HPE

Test Date: Oct-2024

Hardware Availability: Oct-2024

Software Availability: Sep-2024

Compiler Version Notes (Continued)

```
=====
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)
=====
```

```
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++

(Continued on next page)



SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL325 Gen11

(2.60 GHz, AMD EPYC 9655P)

SPECrate®2017_int_base = 1010

SPECrate®2017_int_peak = 1030

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

Test Date: Oct-2024
Hardware Availability: Oct-2024
Software Availability: Sep-2024

Base Compiler Invocation (Continued)

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
```

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
```

(Continued on next page)



SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL325 Gen11

(2.60 GHz, AMD EPYC 9655P)

SPECrate®2017_int_base = 1010

SPECrate®2017_int_peak = 1030

CPU2017 License: 3

Test Sponsor: HPE

Tested by: HPE

Test Date: Oct-2024

Hardware Availability: Oct-2024

Software Availability: Sep-2024

Base Optimization Flags (Continued)

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 -fltto
-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
```

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
```

(Continued on next page)



SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL325 Gen11

(2.60 GHz, AMD EPYC 9655P)

SPECrate®2017_int_base = 1010

SPECrate®2017_int_peak = 1030

CPU2017 License: 3

Test Sponsor: HPE

Tested by: HPE

Test Date: Oct-2024

Hardware Availability: Oct-2024

Software Availability: Sep-2024

Peak Portability Flags (Continued)

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

```
525.x264_r: basepeak = yes
```

```
557.xz_r: basepeak = yes
```

C++ benchmarks:

```
520.omnetpp_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 -fvvisibility=hidden
```

(Continued on next page)



SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL325 Gen11

(2.60 GHz, AMD EPYC 9655P)

SPECrate®2017_int_base = 1010

SPECrate®2017_int_peak = 1030

CPU2017 License: 3

Test Sponsor: HPE

Tested by: HPE

Test Date: Oct-2024

Hardware Availability: Oct-2024

Software Availability: Sep-2024

Peak Optimization Flags (Continued)

520.omnetpp_r (continued):

-mllvm -do-block-reorder=advanced -lamdlibm -lamdalloc-ext
-ldl

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

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>



SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL325 Gen11

(2.60 GHz, AMD EPYC 9655P)

SPECrate®2017_int_base = 1010

SPECrate®2017_int_peak = 1030

CPU2017 License: 3

Test Sponsor: HPE

Tested by: HPE

Test Date: Oct-2024

Hardware Availability: Oct-2024

Software Availability: Sep-2024

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 2024-10-01 08:31:25-0400.

Report generated on 2024-11-06 12:19:33 by CPU2017 PDF formatter v6716.

Originally published on 2024-11-05.