



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

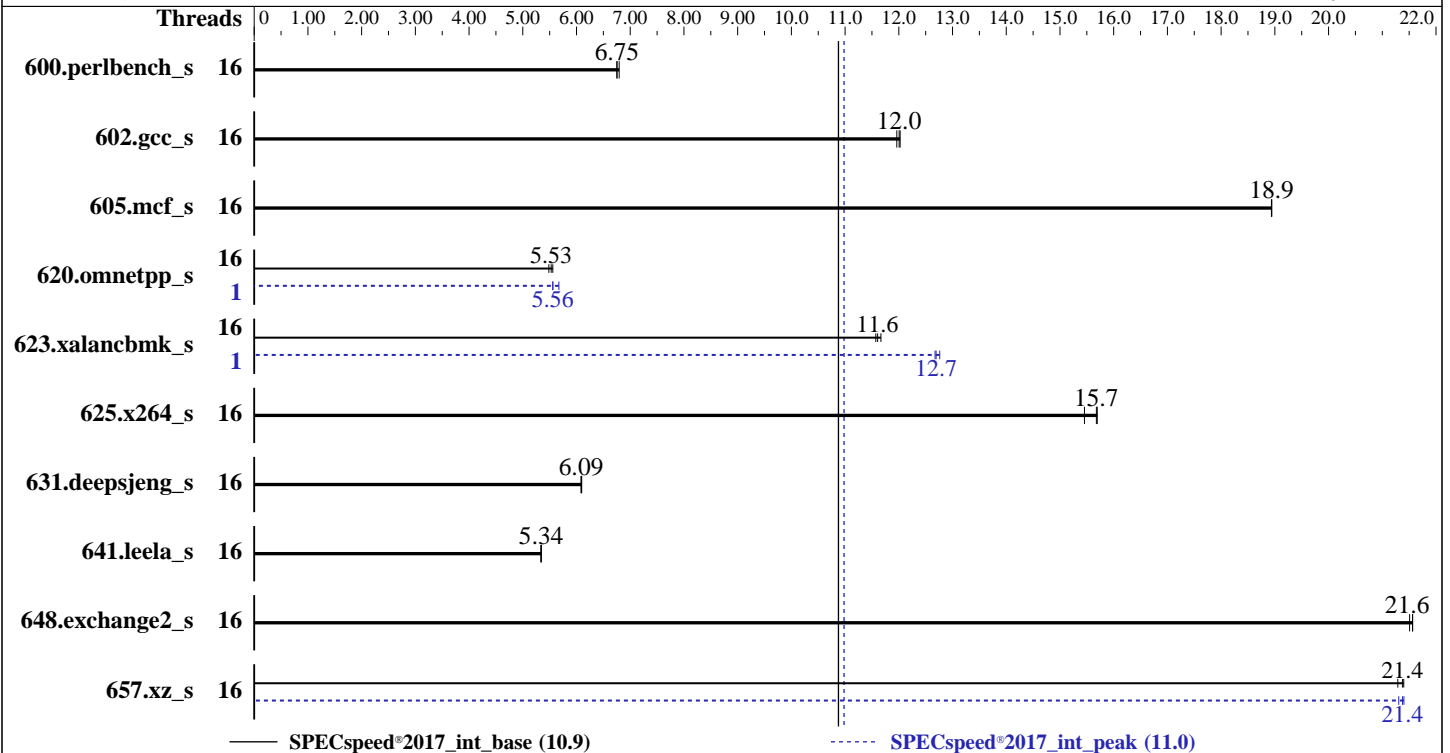
ProLiant DL325 Gen10 Plus v2
(2.40 GHz, AMD EPYC 7303P)

SPECspeed®2017_int_base = 10.9

SPECspeed®2017_int_peak = 11.0

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

Test Date: Nov-2023
Hardware Availability: Nov-2023
Software Availability: May-2022



Hardware

CPU Name: AMD EPYC 7303P
 Max MHz: 3400
 Nominal: 2400
 Enabled: 16 cores, 1 chip
 Orderable: 1 chip
 Cache L1: 32 KB I + 32 KB D on chip per core
 L2: 512 KB I+D on chip per core
 L3: 64 MB I+D on chip per chip,
 16 MB shared / 4 cores
 Other: None
 Memory: 512 GB (8 x 64 GB 2Rx4 PC4-3200AA-R)
 Storage: 1 x 480 GB SAS SSD
 Other: None

Software

OS: Red Hat Enterprise Linux 9.0 (Plow)
 kernel 5.14.0-70.13.1.el9_0.x86_64
 Compiler: C/C++/Fortran: Version 3.2.0 of AOCC
 Parallel: Yes
 Firmware: HPE BIOS Version A43 v2.84 08/17/2023 released
 Aug-2023
 File System: xfs
 System State: Run level 3 (multi-user)
 Base Pointers: 64-bit
 Peak Pointers: 64-bit
 Other: jemalloc: jemalloc memory allocator library v5.1.0
 Power Management: BIOS set to prefer performance at the cost of
 additional power usage



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL325 Gen10 Plus v2
(2.40 GHz, AMD EPYC 7303P)

SPECspeed®2017_int_base = 10.9

SPECspeed®2017_int_peak = 11.0

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

Test Date: Nov-2023
Hardware Availability: Nov-2023
Software Availability: May-2022

Results Table

Benchmark	Base							Peak						
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
600.perlbench_s	16	263	6.75	<u>263</u>	<u>6.75</u>	261	6.79	16	263	6.75	<u>263</u>	<u>6.75</u>	261	6.79
602.gcc_s	16	331	12.0	<u>332</u>	<u>12.0</u>	333	12.0	16	331	12.0	<u>332</u>	<u>12.0</u>	333	12.0
605.mcf_s	16	<u>249</u>	<u>18.9</u>	249	18.9	249	18.9	16	<u>249</u>	<u>18.9</u>	249	18.9	249	18.9
620.omnetpp_s	16	297	5.49	293	5.56	<u>295</u>	<u>5.53</u>	1	<u>293</u>	<u>5.56</u>	288	5.67	293	5.56
623.xalancbmk_s	16	122	11.6	<u>122</u>	<u>11.6</u>	121	11.7	1	112	12.7	<u>112</u>	<u>12.7</u>	111	12.8
625.x264_s	16	<u>113</u>	<u>15.7</u>	112	15.7	114	15.5	16	<u>113</u>	<u>15.7</u>	112	15.7	114	15.5
631.deepsjeng_s	16	<u>235</u>	<u>6.09</u>	235	6.09	235	6.10	16	<u>235</u>	<u>6.09</u>	235	6.09	235	6.10
641.leela_s	16	<u>319</u>	<u>5.34</u>	320	5.34	319	5.34	16	<u>319</u>	<u>5.34</u>	320	5.34	319	5.34
648.exchange2_s	16	136	21.6	<u>136</u>	<u>21.6</u>	137	21.5	16	136	21.6	<u>136</u>	<u>21.6</u>	137	21.5
657.xz_s	16	289	21.4	290	21.3	<u>289</u>	<u>21.4</u>	16	289	21.4	290	21.3	<u>289</u>	<u>21.4</u>

SPECspeed®2017_int_base = **10.9**

SPECspeed®2017_int_peak = **11.0**

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 Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL325 Gen10 Plus v2
(2.40 GHz, AMD EPYC 7303P)

SPECspeed®2017_int_base = 10.9

SPECspeed®2017_int_peak = 11.0

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

Test Date: Nov-2023
Hardware Availability: Nov-2023
Software Availability: May-2022

Environment Variables Notes

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

```
GOMP_CPU_AFFINITY = "0-31"
LD_LIBRARY_PATH =
    "/home/cpu2017/amd_speed_aocc320_milanx_A_lib/lib;/home/cpu2017/amd_speed_aocc320_milanx_A_lib/lib32:"
LIBOMP_NUM_HIDDEN_HELPER_THREADS = "0"
MALLOC_CONF = "retain:true"
OMP_DYNAMIC = "false"
OMP_SCHEDULE = "static"
OMP_STACKSIZE = "128M"
OMP_THREAD_LIMIT = "32"
```

Environment variables set by runcpu during the 620.omnetpp_s peak run:

```
GOMP_CPU_AFFINITY = "0"
```

Environment variables set by runcpu during the 623.xalancbmk_s peak run:

```
GOMP_CPU_AFFINITY = "0"
```

Environment variables set by runcpu during the 657.xz_s peak run:

```
GOMP_CPU_AFFINITY = "0-15"
LIBOMP_NUM_HIDDEN_HELPER_THREADS = "0"
```

General Notes

Binaries were compiled on a system with 2x AMD EPYC 7742 CPU + 1TiB Memory using opensUSE 15.2

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.

jemalloc: configured and built with GCC v4.8.2 in RHEL 7.4 (No options specified)

jemalloc 5.1.0 is available here:

<https://github.com/jemalloc/jemalloc/releases/download/5.1.0/jemalloc-5.1.0.tar.bz2>

Platform Notes

BIOS Configuration

Workload Profile set to General Peak Frequency Compute

AMD SMT Option set to Disabled

Determinism Control set to Manual

Performance Determinism set to Power Deterministic

Memory Patrol Scrubbing set to disabled

Memory PStates set to Disabled

Last-Level Cache (LLC) as NUMA Node set to Enabled

NUMA memory domains per socket set to Four memory domains per socket

Thermal Configuration set to Maximum Cooling

Workload Profile set to Custom

Power Regulator set to OS Control Mode

```
Sysinfo program /home/cpu2017/bin/sysinfo
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
running on localhost.localdomain Wed Nov 8 14:05:31 2023
```

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

(Continued on next page)



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL325 Gen10 Plus v2
(2.40 GHz, AMD EPYC 7303P)

SPECspeed®2017_int_base = 10.9

SPECspeed®2017_int_peak = 11.0

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

Test Date: Nov-2023
Hardware Availability: Nov-2023
Software Availability: May-2022

Platform Notes (Continued)

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 250 (250-6.el9_0)
12. Services, from systemctl list-unit-files
13. Linux kernel boot-time arguments, from /proc/cmdline
14. cpupower frequency-info
15. tuned-adm active
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.localdomain 5.14.0-70.13.1.el9_0.x86_64 #1 SMP PREEMPT Thu Apr 14 12:42:38 EDT 2022 x86_64 x86_64 x86_64 GNU/Linux

2. w
14:05:31 up 3 min, 1 user, load average: 0.14, 0.14, 0.07
USER TTY LOGIN@ IDLE JCPU PCPU WHAT
root pts/0 14:03 9.00s 1.11s 0.02s /bin/bash ./amd_speed_aocc320_milanx_A1.sh

3. Username
From environment variable \$USER: root

4. ulimit -a
real-time non-blocking time (microseconds, -R) unlimited
core file size (blocks, -c) 0
data seg size (kbytes, -d) unlimited
scheduling priority (-e) 0
file size (blocks, -f) unlimited
pending signals (-i) 2062725
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

(Continued on next page)



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL325 Gen10 Plus v2
(2.40 GHz, AMD EPYC 7303P)

SPECspeed®2017_int_base = 10.9

SPECspeed®2017_int_peak = 11.0

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

Test Date: Nov-2023
Hardware Availability: Nov-2023
Software Availability: May-2022

Platform Notes (Continued)

max user processes (-u) 2062725
virtual memory (kbytes, -v) unlimited
file locks (-x) unlimited

```
-----
5. sysinfo process ancestry
/usr/lib/systemd/systemd --switched-root --system --deserialize 30
sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups
sshd: root [priv]
sshd: root@pts/0
-bash
python3 ./run_intspeed.py
/bin/bash ./amd_speed_aocc320_milanx_A1.sh
runcpu --config amd_speed_aocc320_milanx_A1.cfg --tune all --reportable --iterations 3 intspeed
runcpu --configfile amd_speed_aocc320_milanx_A1.cfg --tune all --reportable --iterations 3 --nopower
--runmode speed --tune base:peak --size test:train:refspeed intspeed --nopreenv --note-preenv --logfile
$SPEC/tmp/CPU2017.020/templogs/preenv.intspeed.020.0.log --lognum 020.0 --from_runcpu 2
specperl $SPEC/bin/sysinfo
$SPEC = /home/cpu2017
-----
```

```
-----
6. /proc/cpuinfo
model name      : AMD EPYC 7303P 16-Core Processor
vendor_id      : AuthenticAMD
cpu family     : 25
model          : 1
stepping       : 1
microcode      : 0xa0011d1
bugs           : sysret_ss_attrs spectre_v1 spectre_v2 spec_store_bypass
TLB size      : 2560 4K pages
cpu cores     : 16
siblings      : 16
1 physical ids (chips)
16 processors (hardware threads)
physical id 0: core ids 0-15
physical id 0: apicids 0-15
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 2.37.4:
Architecture:          x86_64
CPU op-mode(s):        32-bit, 64-bit
Address sizes:         48 bits physical, 48 bits virtual
Byte Order:            Little Endian
CPU(s):                16
On-line CPU(s) list:  0-15
Vendor ID:             AuthenticAMD
BIOS Vendor ID:       Advanced Micro Devices, Inc.
Model name:            AMD EPYC 7303P 16-Core Processor
BIOS Model name:      AMD EPYC 7303P 16-Core Processor
CPU family:            25
Model:                 1
Thread(s) per core:   1
Core(s) per socket:   16
Socket(s):             1
Stepping:              1
Frequency boost:      enabled
-----
```

(Continued on next page)



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL325 Gen10 Plus v2
(2.40 GHz, AMD EPYC 7303P)

SPECspeed®2017_int_base = 10.9

SPECspeed®2017_int_peak = 11.0

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

Test Date: Nov-2023
Hardware Availability: Nov-2023
Software Availability: May-2022

Platform Notes (Continued)

```

CPU max MHz:          2400.0000
CPU min MHz:          1500.0000
BogoMIPS:              4791.01
Flags:                 fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov pat pse36
                        clflush mmx fxsr sse sse2 ht syscall nx mmxext fxsr_opt pdpe1gb rdtscp lm
                        constant_tsc rep_good nopl nonstop_tsc cpuid extd_apicid aperfmperf rapl
                        pni pclmulqdq monitor ssse3 fma cx16 pcid sse4_1 sse4_2 movbe popcnt aes
                        xsave avx f16c rdrand lahf_lm cmp_legacy svm extapic cr8_legacy abm sse4a
                        misalignsse 3dnowprefetch osvw ibs skinit wdt tce topoext perfctr_core
                        perfctr_nb bpext perfctr_llc mwaitx cpb cat_l3 cdp_l3 invpcid_single
                        hw_pstate ssbd mba ibrs ibpb stibp vmmcall fsgsbase bmi1 avx2 smep bmi2
                        erms invpcid cqm rdt_a rdseed adx smap clflushopt clwb sha_ni xsaveopt
                        xsavec xgetbv1 xsaves cqm_llc cqm_occup_llc cqm_mbm_total cqm_mbm_local
                        clzero irperf xsaveerptr rdpru wbnoinvd amd_ppin arat npt lbrv svm_lock
                        nrip_save tsc_scale vmcb_clean flushbyasid decodeassists pausefilter
                        pfthreshold v_vmsave_vmload vgif v_spec_ctrl umip pku ospke vaes
                        vpclmulqdq rdpid overflow_recov succor smca fsrm
Virtualization:        AMD-V
L1d cache:             512 KiB (16 instances)
L1i cache:             512 KiB (16 instances)
L2 cache:              8 MiB (16 instances)
L3 cache:              64 MiB (4 instances)
NUMA node(s):         4
NUMA node0 CPU(s):    0-3
NUMA node1 CPU(s):    4-7
NUMA node2 CPU(s):    8-11
NUMA node3 CPU(s):    12-15
Vulnerability Itlb multihit: Not affected
Vulnerability L1tf:    Not affected
Vulnerability Mds:     Not affected
Vulnerability Meltdown: 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; Retpolines, IBPB conditional, IBRS_FW, STIBP disabled, RSB
                        filling
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	32K	512K	8	Data	1	64	1	64
L1i	32K	512K	8	Instruction	1	64	1	64
L2	512K	8M	8	Unified	2	1024	1	64
L3	16M	64M	16	Unified	3	16384	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: 0-3
node 0 size: 128738 MB
node 0 free: 128230 MB
node 1 cpus: 4-7
node 1 size: 129022 MB
node 1 free: 128706 MB
node 2 cpus: 8-11
node 2 size: 129022 MB
node 2 free: 128836 MB
node 3 cpus: 12-15
node 3 size: 129002 MB

```

(Continued on next page)



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL325 Gen10 Plus v2
(2.40 GHz, AMD EPYC 7303P)

SPECspeed®2017_int_base = 10.9

SPECspeed®2017_int_peak = 11.0

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

Test Date: Nov-2023
Hardware Availability: Nov-2023
Software Availability: May-2022

Platform Notes (Continued)

```
node 3 free: 128836 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:      528164864 kB
-----
```

```
-----
10. who -r
run-level 3 Nov 8 14:02
-----
```

```
-----
11. Systemd service manager version: systemd 250 (250-6.el9_0)
Default Target  Status
multi-user      running
-----
```

```
-----
12. Services, from systemctl list-unit-files
STATE          UNIT FILES
enabled        NetworkManager NetworkManager-dispatcher NetworkManager-wait-online auditd crond
                dbus-broker firewalld getty@ irqbalance kdump lvm2-monitor mdmonitor microcode
                nis-domainname rhsmcertd rsyslog selinux-autorelabel-mark sshd sssd
                systemd-network-generator tuned udisks2
enabled-runtime systemd-remount-fs
disabled       blk-availability chrony-wait chronyd console-getty cpupower debug-shell hwloc-dump-hwdata
                kvm_stat man-db-restart-cache-update nftables powertop rdisc rhsm rhsm-facts rpmdb-rebuild
                serial-getty@ sshd-keygen@ systemd-boot-check-no-failures systemd-pstore systemd-sysext
                target targetclid
indirect       sssd-autofs sssd-kcm sssd-nss sssd-pac sssd-pam sssd-ssh sssd-sudo
-----
```

```
-----
13. Linux kernel boot-time arguments, from /proc/cmdline
BOOT_IMAGE=(hd0,gpt2)/vmlinuz-5.14.0-70.13.1.el9_0.x86_64
root=/dev/mapper/rhel-root
ro
resume=/dev/mapper/rhel-swap
rd.lvm.lv=rhel/root
rd.lvm.lv=rhel/swap
-----
```

```
-----
14. cpupower frequency-info
analyzing CPU 0:
current policy: frequency should be within 1.50 GHz and 2.40 GHz.
                The governor "performance" may decide which speed to use
                within this range.

boost state support:
Supported: yes
Active: yes
Boost States: 0
Total States: 3
Pstate-P0: 2400MHz
-----
```

```
-----
15. tuned-adm active
Current active profile: throughput-performance
-----
```

(Continued on next page)



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL325 Gen10 Plus v2
(2.40 GHz, AMD EPYC 7303P)

SPECspeed®2017_int_base = 10.9

SPECspeed®2017_int_peak = 11.0

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

Test Date: Nov-2023
Hardware Availability: Nov-2023
Software Availability: May-2022

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             Red Hat Enterprise Linux 9.0 (Plow)
redhat-release         Red Hat Enterprise Linux release 9.0 (Plow)
system-release         Red Hat Enterprise Linux release 9.0 (Plow)
-----

20. Disk information
SPEC is set to: /home/cpu2017
Filesystem             Type  Size  Used Avail Use% Mounted on
/dev/mapper/rhel-home xfs   372G  9.7G  362G   3% /home
-----

21. /sys/devices/virtual/dmi/id
Vendor:                HPE
Product:               ProLiant DL325 Gen10 Plus v2
Product Family:       ProLiant
Serial:                CN70381LLR

```

(Continued on next page)



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL325 Gen10 Plus v2
(2.40 GHz, AMD EPYC 7303P)

SPECspeed®2017_int_base = 10.9

SPECspeed®2017_int_peak = 11.0

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

Test Date: Nov-2023
Hardware Availability: Nov-2023
Software Availability: May-2022

Platform Notes (Continued)

22. dmidecode

Additional information from dmidecode 3.3 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:

8x Micron 36ASF8G72PZ-3G2B2 64 GB 2 rank 3200

23. BIOS

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

BIOS Vendor: HPE
BIOS Version: A43
BIOS Date: 08/17/2023
BIOS Revision: 2.84
Firmware Revision: 2.72

Compiler Version Notes

=====
C | 600.perlbench_s(base, peak) 602.gcc_s(base, peak) 605.mcf_s(base, peak) 625.x264_s(base, peak)
| 657.xz_s(base, peak)
=====

AMD clang version 13.0.0 (CLANG: AOCC_3.2.0-Build#128 2021_11_12) (based on LLVM Mirror.Version.13.0.0)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc-compiler-3.2.0/bin
=====

=====
C++ | 620.omnetpp_s(base, peak) 623.xalancbmk_s(base, peak) 631.deepsjeng_s(base, peak)
| 641.leela_s(base, peak)
=====

AMD clang version 13.0.0 (CLANG: AOCC_3.2.0-Build#128 2021_11_12) (based on LLVM Mirror.Version.13.0.0)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc-compiler-3.2.0/bin
=====

=====
Fortran | 648.exchange2_s(base, peak)
=====

AMD clang version 13.0.0 (CLANG: AOCC_3.2.0-Build#128 2021_11_12) (based on LLVM Mirror.Version.13.0.0)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc-compiler-3.2.0/bin
=====

Base Compiler Invocation

C benchmarks:
clang

(Continued on next page)



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL325 Gen10 Plus v2
(2.40 GHz, AMD EPYC 7303P)

SPECspeed®2017_int_base = 10.9

SPECspeed®2017_int_peak = 11.0

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

Test Date: Nov-2023
Hardware Availability: Nov-2023
Software Availability: May-2022

Base Compiler Invocation (Continued)

C++ benchmarks:

clang++

Fortran benchmarks:

flang

Base Portability Flags

```
600.perlbench_s: -DSPEC_LINUX_X64 -DSPEC_LP64
602.gcc_s: -DSPEC_LP64
605.mcf_s: -DSPEC_LP64
620.omnetpp_s: -DSPEC_LP64
623.xalancbmk_s: -DSPEC_LINUX -DSPEC_LP64
625.x264_s: -DSPEC_LP64
631.deepsjeng_s: -DSPEC_LP64
641.leela_s: -DSPEC_LP64
648.exchange2_s: -DSPEC_LP64
657.xz_s: -DSPEC_LP64
```

Base Optimization Flags

C benchmarks:

```
-m64 -Wl,-allow-multiple-definition -Wl,-mllvm -Wl,-enable-licm-vrp
-Wl,-mllvm -Wl,-region-vectorize -Wl,-mllvm -Wl,-function-specialize
-Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3 -O3 -march=znver3
-fveclib=AMDLIBM -ffast-math -fopenmp -flto -fstruct-layout=5
-mllvm -unroll-threshold=50 -mllvm -inline-threshold=1000
-fremap-arrays -mllvm -function-specialize -flv-function-specialization
-mllvm -enable-gvn-hoist -mllvm -global-vectorize-slp=true
-mllvm -enable-licm-vrp -mllvm -reduce-array-computations=3 -z muldefs
-DSPEC_OPENMP -fopenmp=libomp -lomp -lamdlibm -ljemalloc -lflang
```

C++ benchmarks:

```
-m64 -Wl,-mllvm -Wl,-region-vectorize
-Wl,-mllvm -Wl,-function-specialize
-Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3 -O3 -march=znver3
-fveclib=AMDLIBM -ffast-math -fopenmp -flto
-mllvm -enable-partial-unswitch -mllvm -unroll-threshold=100
-fininline-aggressive -flv-function-specialization
-mllvm -loop-unswitch-threshold=200000 -mllvm -reroll-loops
```

(Continued on next page)



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL325 Gen10 Plus v2
(2.40 GHz, AMD EPYC 7303P)

SPECspeed®2017_int_base = 10.9

SPECspeed®2017_int_peak = 11.0

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

Test Date: Nov-2023
Hardware Availability: Nov-2023
Software Availability: May-2022

Base Optimization Flags (Continued)

C++ benchmarks (continued):

```
-mllvm -aggressive-loop-unswitch -mllvm -extra-vectorizer-passes  
-mllvm -reduce-array-computations=3 -mllvm -global-vectorize-slp=true  
-mllvm -convert-pow-exp-to-int=false -z muldefs  
-fvirtual-function-elimination -fvisibility=hidden -DSPEC_OPENMP  
-fopenmp=libomp -lomp -lamdlibm -ljemalloc -lflang
```

Fortran benchmarks:

```
-m64 -Wl,-mllvm -Wl,-inline-recursion=4  
-Wl,-mllvm -Wl,-lsr-in-nested-loop -Wl,-mllvm -Wl,-enable-iv-split  
-Wl,-mllvm -Wl,-region-vectorize -Wl,-mllvm -Wl,-function-specialize  
-Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6  
-Wl,-mllvm -Wl,-reduce-array-computations=3 -O3 -march=znver3  
-fveclib=AMDLIBM -ffast-math -fopenmp -flto -z muldefs  
-mllvm -unroll-aggressive -mllvm -unroll-threshold=150 -DSPEC_OPENMP  
-fopenmp=libomp -lomp -lamdlibm -ljemalloc -lflang
```

Base Other Flags

C benchmarks:

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

C++ benchmarks:

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

Fortran benchmarks:

```
-Wno-return-type
```

Peak Compiler Invocation

C benchmarks:

```
clang
```

C++ benchmarks:

```
clang++
```

Fortran benchmarks:

```
flang
```



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL325 Gen10 Plus v2
(2.40 GHz, AMD EPYC 7303P)

SPECspeed®2017_int_base = 10.9

SPECspeed®2017_int_peak = 11.0

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

Test Date: Nov-2023
Hardware Availability: Nov-2023
Software Availability: May-2022

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:

600.perlbench_s: basepeak = yes

602.gcc_s: basepeak = yes

605.mcf_s: basepeak = yes

625.x264_s: basepeak = yes

657.xz_s: -m64 -Wl,-allow-multiple-definition
-Wl,-mllvm -Wl,-enable-licm-vrp
-Wl,-mllvm -Wl,-do-block-reorder=aggressive
-Wl,-mllvm -Wl,-region-vectorize
-Wl,-mllvm -Wl,-function-specialize
-Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3 -Ofast
-march=znver3 -fveclib=AMDLIBM -ffast-math -fopenmp
-flto -fstruct-layout=5 -mllvm -unroll-threshold=50
-mllvm -inline-threshold=1000 -fremap-arrays
-mllvm -function-specialize -flv-function-specialization
-mllvm -enable-gvn-hoist -mllvm -global-vectorize-slp=true
-mllvm -enable-licm-vrp -mllvm -reduce-array-computations=3
-mllvm -do-block-reorder=aggressive -DSPEC_OPENMP
-fopenmp=libomp -lomp -lamdlibm -ljemalloc -lflang

C++ benchmarks:

620.omnetpp_s: -m64 -Wl,-mllvm -Wl,-function-specialize
-Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3 -Ofast
-march=znver3 -fveclib=AMDLIBM -ffast-math -fopenmp
-flto -finline-aggressive -mllvm -unroll-threshold=100
-flv-function-specialization -mllvm -enable-licm-vrp
-mllvm -reroll-loops -mllvm -aggressive-loop-unswitch
-mllvm -reduce-array-computations=3
-mllvm -global-vectorize-slp=true
-fvirtual-function-elimination -fvisibility=hidden
-DSPEC_OPENMP -fopenmp=libomp -lomp -lamdlibm -ljemalloc
-lflang

(Continued on next page)



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL325 Gen10 Plus v2
(2.40 GHz, AMD EPYC 7303P)

SPECspeed®2017_int_base = 10.9

SPECspeed®2017_int_peak = 11.0

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

Test Date: Nov-2023
Hardware Availability: Nov-2023
Software Availability: May-2022

Peak Optimization Flags (Continued)

```
623.xalancbmk_s: -m64 -Wl,-mllvm -Wl,-function-specialize
-Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-do-block-reorder=aggressive -Ofast
-march=znver3 -fveclib=AMDLIBM -ffast-math -fopenmp
-flto -finline-aggressive -mllvm -unroll-threshold=100
-flv-function-specialization -mllvm -enable-licm-vrp
-mllvm -reroll-loops -mllvm -aggressive-loop-unswitch
-mllvm -reduce-array-computations=3
-mllvm -global-vectorize-slp=true
-mllvm -do-block-reorder=aggressive
-fvirtual-function-elimination -fvisibility=hidden
-DSPEC_OPENMP -fopenmp=libomp -lomp -lamdlibm -ljemalloc
-lflang
```

631.deepsjeng_s: basepeak = yes

641.leela_s: basepeak = yes

Fortran benchmarks:

648.exchange2_s: basepeak = yes

Peak Other Flags

C benchmarks:

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

C++ benchmarks:

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

Fortran benchmarks:

-Wno-return-type

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

<http://www.spec.org/cpu2017/flags/HPE-Platform-Flags-AMD-V1.3-EPYC-revS.html>

<http://www.spec.org/cpu2017/flags/aocc320-flags-A1.html>

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

<http://www.spec.org/cpu2017/flags/HPE-Platform-Flags-AMD-V1.3-EPYC-revS.xml>

<http://www.spec.org/cpu2017/flags/aocc320-flags-A1.xml>



SPEC CPU[®]2017 Integer Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL325 Gen10 Plus v2
(2.40 GHz, AMD EPYC 7303P)

SPECspeed[®]2017_int_base = 10.9

SPECspeed[®]2017_int_peak = 11.0

CPU2017 License: 3

Test Sponsor: HPE

Tested by: HPE

Test Date: Nov-2023

Hardware Availability: Nov-2023

Software Availability: May-2022

SPEC CPU and SPECspeed 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 2023-11-08 03:35:30-0500.
Report generated on 2023-12-06 19:43:29 by CPU2017 PDF formatter v6716.
Originally published on 2023-12-06.