



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2025 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL385 Gen11

(3.00 GHz, AMD EPYC 9335)

SPECspeed®2017_int_base = 18.8

SPECspeed®2017_int_peak = 19.0

CPU2017 License: 3

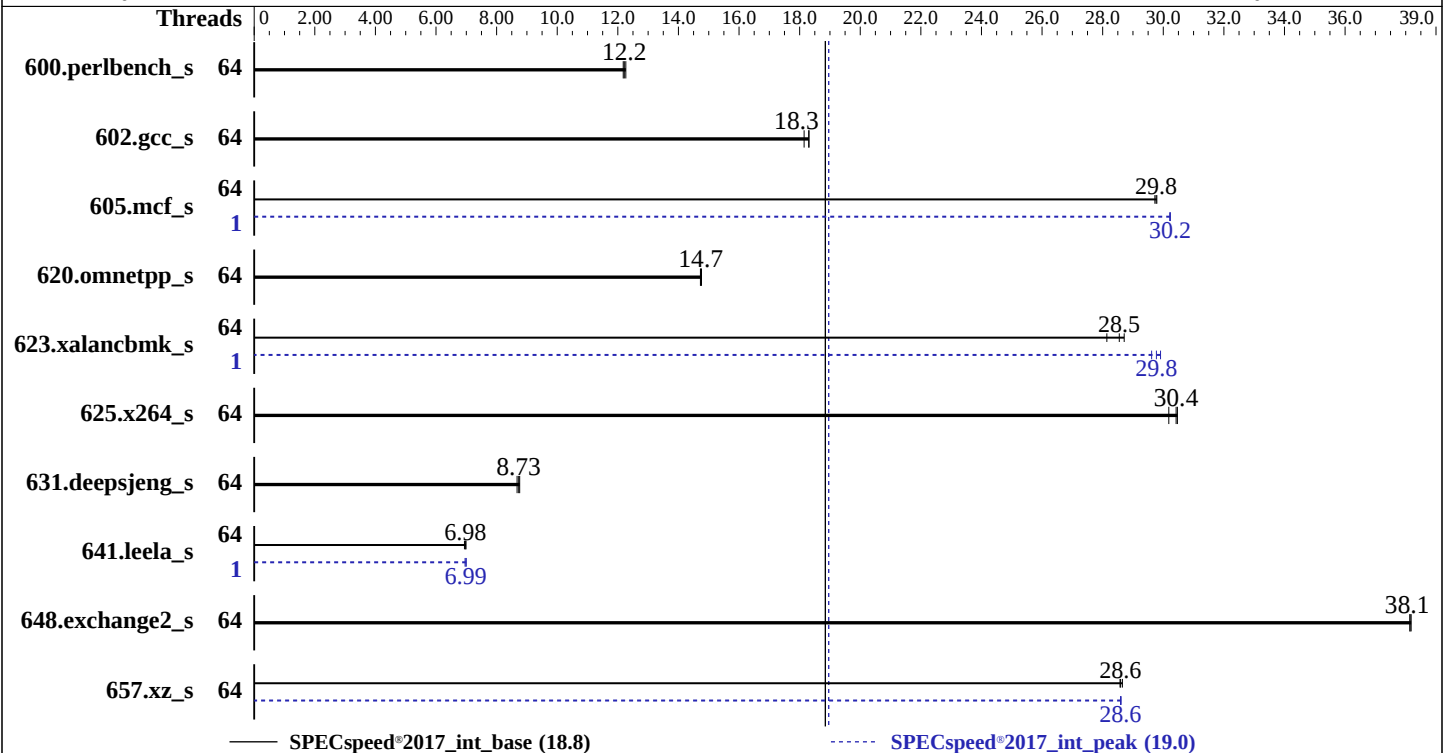
Test Sponsor: HPE

Tested by: HPE

Test Date: Dec-2024

Hardware Availability: Jan-2025

Software Availability: Oct-2024



Hardware

CPU Name: AMD EPYC 9335
Max MHz: 4400
Nominal: 3000
Enabled: 64 cores, 2 chips
Orderable: 1,2 chips
Cache L1: 32 KB I + 48 KB D on chip per core
L2: 1 MB I+D on chip per core
L3: 128 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 960 GB SATA SSD
Other: CPU Cooling: Air

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: Yes
Firmware: HPE BIOS Version v2.20 10/31/2024 released
Oct-2024
File System: xfs
System State: Run level 5 (multi-user)
Base Pointers: 64-bit
Peak Pointers: 64-bit
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						
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
600.perlbench_s	64	<u>145</u>	<u>12.2</u>	145	12.3	146	12.2	64	<u>145</u>	<u>12.2</u>	145	12.3	146	12.2
602.gcc_s	64	<u>218</u>	<u>18.3</u>	217	18.3	219	18.1	64	<u>218</u>	<u>18.3</u>	217	18.3	219	18.1
605.mcf_s	64	<u>159</u>	<u>29.8</u>	159	29.7	158	29.8	1	<u>156</u>	<u>30.2</u>	156	30.2	156	30.2
620.omnetpp_s	64	111	14.7	<u>111</u>	<u>14.7</u>	110	14.8	64	111	14.7	<u>111</u>	<u>14.7</u>	110	14.8
623.xalancbmk_s	64	49.4	28.7	<u>49.6</u>	<u>28.5</u>	50.4	28.1	1	<u>47.6</u>	<u>29.8</u>	47.8	29.6	47.4	29.9
625.x264_s	64	58.4	30.2	57.9	30.5	<u>58.0</u>	<u>30.4</u>	64	58.4	30.2	57.9	30.5	<u>58.0</u>	<u>30.4</u>
631.deepsjeng_s	64	165	8.68	<u>164</u>	<u>8.73</u>	164	8.76	64	165	8.68	<u>164</u>	<u>8.73</u>	164	8.76
641.leela_s	64	246	6.94	244	6.99	<u>244</u>	<u>6.98</u>	1	245	6.96	244	6.99	<u>244</u>	<u>6.99</u>
648.exchange2_s	64	77.1	38.1	77.0	38.2	<u>77.1</u>	<u>38.1</u>	64	77.1	38.1	77.0	38.2	<u>77.1</u>	<u>38.1</u>
657.xz_s	64	216	28.7	216	28.6	<u>216</u>	<u>28.6</u>	64	216	28.6	216	28.6	<u>216</u>	<u>28.6</u>

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Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Compiler Notes

The AMD64 AOCC Compiler Suite is available at
<http://developer.amd.com/amd-aocc/>

Submit Notes

The config file option 'submit' was used.
'numactl' was used to bind copies to the cores.
See the configuration file for details.

Operating System Notes

'ulimit -s unlimited' was used to set environment stack size limit
'ulimit -l 2097152' was used to set environment locked pages in memory limit

runcpu command invoked through numactl i.e.:
numactl --interleave=all runcpu <etc>

To limit dirty cache to 8% of memory, 'sysctl -w vm.dirty_ratio=8' run as root.
To limit swap usage to minimum necessary, 'sysctl -w vm.swappiness=1' run as root.
To free node-local memory and avoid remote memory usage,
'sysctl -w vm.zone_reclaim_mode=1' run as root.
To clear filesystem caches, 'sync; sysctl -w vm.drop_caches=3' run as root.
To disable address space layout randomization (ASLR) to reduce run-to-run
variability, 'sysctl -w kernel.randomize_va_space=0' run as root.

To enable Transparent Hugepages (THP) for all allocations,
'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:

GOMP_CPU_AFFINITY = "0-63"

LD_LIBRARY_PATH =

"/home/cpu2017/amd_speed_aocc500_znver5_A_lib/lib:/home/cpu2017/amd_speed_aocc500_znver5_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 = "64"

Environment variables set by runcpu during the 605.mcf_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 641.leela_s peak run:

GOMP_CPU_AFFINITY = "0"

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

GOMP_CPU_AFFINITY = "0-63"

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 Peak Frequency Compute

Determinism Control set to Manual

Performance Determinism set to Power Deterministic

Memory Patrol Scrubbing set to Disabled

ACPI CST C2 Latency set to 18 microseconds

Thermal Configuration set to Maximum Cooling

AMD SMT Option set to Disabled

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

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 1.0.0.2

Sysinfo program /home/cpu2017/bin/sysinfo

Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197

running on localhost.localdomain Tue Dec 10 10:08:37 2024

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

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12. Services, from systemctl list-unit-files
13. Linux kernel boot-time arguments, from /proc/cmdline
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15. tuned-adm active
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18. /sys/kernel/mm/transparent_hugepage/khugepaged
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```
1. uname -a
Linux localhost.localdomain 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
10:08:37 up 2 min,  3 users,  load average: 1.15, 1.42, 0.63
USER      TTY      FROM            LOGIN@   IDLE   JCPU   PCPU   WHAT
root      :          :            10:07    ?xdm?  6:34   0.02s  gdm-session-worker [pam/gdm-password]
root      seat0    login-         10:07    0.00s  0.00s  0.00s  /usr/lib/gdm/gdm-x-session
--register-session --run-script gnome
root      :1       :            10:07    ?xdm?  6:34   0.00s  /usr/lib/gdm/gdm-x-session
--register-session --run-script gnome
root      pts/1    172.17.1.96    10:08    13.00s 0.83s  0.09s  /bin/bash ./amd_speed_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) 3094667
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
```

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Platform Notes (Continued)

stack size (kbytes, -s) unlimited
cpu time (seconds, -t) unlimited
max user processes (-u) 3094667
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/1
-bash
python3 ./run_intspeed.py
/bin/bash ./amd_speed_aocc500_znver5_A1.sh
runcpu --config amd_speed_aocc500_znver5_A1.cfg --tune all --reportable --iterations 3 intspeed
runcpu --configfile amd_speed_aocc500_znver5_A1.cfg --tune all --reportable --iterations 3 --nopower
--runmode speed --tune base:peak --size test:train:refspeed intspeed --nopreenv --note-preenv --logfile
$SPEC/tmp/CPU2017.012/temlogs/preenv.intspeed.012.0.log --lognum 012.0 --from_runcpu 2
specperl $SPEC/bin/sysinfo
$SPEC = /home/cpu2017
```

6. /proc/cpuinfo

```
model name      : AMD EPYC 9335 32-Core Processor
vendor_id       : AuthenticAMD
cpu family      : 26
model           : 2
stepping        : 1
microcode       : 0xb00211a
bugs            : sysret_ss_attrs spectre_v1 spectre_v2 spec_store_bypass
TLB size        : 192 4K pages
cpu cores       : 32
siblings        : 32
2 physical ids (chips)
64 processors (hardware threads)
physical id 0:  core ids 0-31
physical id 1:  core ids 0-31
physical id 0:  apicids 0-31
physical id 1:  apicids 32-63
```

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):                64
On-line CPU(s) list:   0-63
Vendor ID:              AuthenticAMD
BIOS Vendor ID:        Advanced Micro Devices, Inc.
Model name:             AMD EPYC 9335 32-Core Processor
BIOS Model name:       AMD EPYC 9335 32-Core Processor
BIOS CPU family:       107
CPU family:            26
Model:                 2
```

CPU @ 3.0GHz

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Platform Notes (Continued)

Thread(s) per core: 1
Core(s) per socket: 32
Socket(s): 2
Stepping: 1
Frequency boost: enabled
CPU(s) scaling MHz: 106%
CPU max MHz: 3000.0000
CPU min MHz: 1500.0000
BogoMIPS: 5990.38
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 bpxt
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
flush_l1d debug_swap
Virtualization: AMD-V
L1d cache: 3 MiB (64 instances)
L1i cache: 2 MiB (64 instances)
L2 cache: 64 MiB (64 instances)
L3 cache: 256 MiB (8 instances)
NUMA node(s): 8
NUMA node0 CPU(s): 0-7
NUMA node1 CPU(s): 8-15
NUMA node2 CPU(s): 16-23
NUMA node3 CPU(s): 24-31
NUMA node4 CPU(s): 32-39
NUMA node5 CPU(s): 40-47
NUMA node6 CPU(s): 48-55
NUMA node7 CPU(s): 56-63
Vulnerability Gather data sampling: Not affected
Vulnerability Itlb multihit: Not affected
Vulnerability L1tf: Not affected
Vulnerability Mds: Not affected
Vulnerability Meltdown: Not affected
Vulnerability Mmio stale data: Not affected
Vulnerability Reg file data sampling: Not affected
Vulnerability Retbleed: Not affected
Vulnerability Spec rstack overflow: Not affected
Vulnerability Spec store bypass: Mitigation; Speculative Store Bypass disabled via prctl
Vulnerability Spectre v1: Mitigation; usercopy/swapgs barriers and __user pointer sanitization
Vulnerability Spectre v2: Mitigation; Enhanced / Automatic IBRS; IBPB conditional; STIBP
disabled; RSB filling; PBRSE-eIBRS Not affected; BHI Not affected
Vulnerability Srbds: Not affected
Vulnerability Tsx async abort: Not affected

From lscpu --cache:

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Platform Notes (Continued)

NAME	ONE-SIZE	ALL-SIZE	WAYS	TYPE	LEVEL	SETS	PHY-LINE	COHERENCY-SIZE
L1d	48K	3M	12	Data	1	64	1	64
L1i	32K	2M	8	Instruction	1	64	1	64
L2	1M	64M	16	Unified	2	1024	1	64
L3	32M	256M	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: 0-7

node 0 size: 96448 MB

node 0 free: 95903 MB

node 1 cpus: 8-15

node 1 size: 96765 MB

node 1 free: 96291 MB

node 2 cpus: 16-23

node 2 size: 96727 MB

node 2 free: 95711 MB

node 3 cpus: 24-31

node 3 size: 96765 MB

node 3 free: 95947 MB

node 4 cpus: 32-39

node 4 size: 96765 MB

node 4 free: 96300 MB

node 5 cpus: 40-47

node 5 size: 96765 MB

node 5 free: 96378 MB

node 6 cpus: 48-55

node 6 size: 96765 MB

node 6 free: 96446 MB

node 7 cpus: 56-63

node 7 size: 96693 MB

node 7 free: 96291 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: 792266032 kB

10. who -r

run-level 5 Dec 10 10:06

11. Systemd service manager version: systemd 254 (254.10+suse.84.ge8d77af424)

Default Target Status

graphical running

12. Services, from systemctl list-unit-files

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Platform Notes (Continued)

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 wicked 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 ipmievdev 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-sysextd systemd-time-wait-sync systemd-timesyncd tuned udisks2 update-system-flatpaks upower vncserver@ wpa_supplicant@
indirect	pcscd 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=03804bb9-43a7-4bf1-b551-5c912b239e58
splash=silent
mitigations=auto
quiet
security=apparmor
```

14. cpupower frequency-info

```
analyzing CPU 24:
  current policy: frequency should be within 1.50 GHz and 3.00 GHz.
                  The governor "performance" may decide which speed to use
                  within this range.

boost state support:
  Supported: yes
  Active: yes
```

15. tuned-adm active

```
No current active profile.
```

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

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Platform Notes (Continued)

vm.zone_reclaim_mode

1

17. /sys/kernel/mm/transparent_hugepage

defrag [always] defer defer+madvice madvice never
enabled [always] madvice 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

Filesystem	Type	Size	Used	Avail	Use%	Mounted on
/dev/sdd2	xfs	892G	47G	845G	6%	/

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

Vendor: HPE
Product: ProLiant DL385 Gen11
Product Family: ProLiant
Serial: DL385GEN11-001

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

Memory:

24x Hynix HMC688AHBRA472N 32 GB 2 rank 6400, configured at 6000

23. BIOS

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

BIOS Vendor: HPE
BIOS Version: 2.20
BIOS Date: 10/31/2024
BIOS Revision: 2.20
Firmware Revision: 1.63



SPEC CPU®2017 Integer Speed Result

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Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL385 Gen11

(3.00 GHz, AMD EPYC 9335)

SPECspeed®2017_int_base = 18.8

SPECspeed®2017_int_peak = 19.0

CPU2017 License: 3

Test Sponsor: HPE

Tested by: HPE

Test Date: Dec-2024

Hardware Availability: Jan-2025

Software Availability: Oct-2024

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 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++    | 620.omnetpp_s(base, peak) 623.xalancbmk_s(base, peak) 631.deepsjeng_s(base, peak)
      | 641.leela_s(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 | 648.exchange2_s(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

```
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
```

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Tested by: HPE

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Base Portability Flags (Continued)

641.leela_s: -DSPEC_LP64

648.exchange2_s: -DSPEC_LP64

657.xz_s: -DSPEC_LP64

Base Optimization Flags

C benchmarks:

-m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-allow-multiple-definition -Wl,-mllvm -Wl,-extra-inliner -O3
-march=znver5 -fveclib=AMDLIBM -ffast-math -fopenmp -DSPEC_OPENMP
-flto -fremap-arrays -fstrip-mining -fstruct-layout=7
-mllvm -inline-threshold=1000 -mllvm -reduce-array-computations=3
-mllvm -unroll-threshold=50 -zopt -fopenmp=libomp -lomp -lamdlibm
-lflang -lamdalloc

C++ benchmarks:

-m64 -std=c++14 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3 -O3 -march=znver5
-fveclib=AMDLIBM -ffast-math -fopenmp -DSPEC_OPENMP -flto
-mllvm -loop-unswitch-threshold=200000
-mllvm -reduce-array-computations=3 -mllvm -unroll-threshold=100 -zopt
-fvirtual-function-elimination -fvisibility=hidden -fopenmp=libomp
-lomp -lamdlibm -lflang -lamdalloc-ext

Fortran benchmarks:

-m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-enable-iv-split -Wl,-mllvm -Wl,-inline-recursion=4
-Wl,-mllvm -Wl,-lsr-in-nested-loop -O3 -march=znver5 -fveclib=AMDLIBM
-ffast-math -fopenmp -flto -mllvm -optimize-strided-mem-cost
-mllvm -unroll-aggressive -mllvm -unroll-threshold=150 -fopenmp=libomp
-lomp -lamdlibm -lflang -lamdalloc

Base Other Flags

C benchmarks:

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

C++ benchmarks:

-Wno-unused-command-line-argument

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Base Other Flags (Continued)

Fortran benchmarks:

-Wno-unused-command-line-argument

Peak Compiler Invocation

C benchmarks:

clang

C++ benchmarks:

clang++

Fortran benchmarks:

flang

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: -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 -fopenmp -flto

-DSPEC_OPENMP -fremap-arrays -fstrip-mining

-fstruct-layout=9 -mllvm -inline-threshold=1000

-mllvm -reduce-array-computations=3

-mllvm -unroll-threshold=50 -zopt -fopenmp=libomp -lomp

-lamdlibm -lamdalloc -lflang

625.x264_s: basepeak = yes

657.xz_s: -m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6

-Wl,-mllvm -Wl,-reduce-array-computations=3

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Peak Optimization Flags (Continued)

657.xz_s (continued):

```
-Wl, -allow-multiple-definition  
-Wl, -mllvm -Wl, -extra-inliner -Ofast -march=znver5  
-fveclib=AMDLIBM -ffast-math -fopenmp -flto  
-DSPEC_OPENMP -fremap-arrays -fstrip-mining  
-fstruct-layout=9 -mllvm -inline-threshold=1000  
-mllvm -reduce-array-computations=3  
-mllvm -unroll-threshold=50 -zopt -fopenmp=libomp -lomp  
-lamdlibm -lamdalloc -lflang
```

C++ benchmarks:

620.omnetpp_s: basepeak = yes

623.xalancbmk_s: -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 -fopenmp  
-flto -DSPEC_OPENMP -mllvm -reduce-array-computations=3  
-mllvm -unroll-threshold=100 -zopt  
-fvirtual-function-elimination -fvisibility=hidden  
-mllvm -do-block-reorder=advanced -fopenmp=libomp -lomp  
-lamdlibm -lamdalloc-ext -lflang
```

631.deepsjeng_s: basepeak = yes

641.leela_s: -m64 -std=c++14

```
-Wl, -mllvm -Wl, -align-all-nofallthru-blocks=6  
-Wl, -mllvm -Wl, -reduce-array-computations=3 -Ofast  
-march=znver5 -fveclib=AMDLIBM -ffast-math -fopenmp  
-flto -DSPEC_OPENMP -mllvm -reduce-array-computations=3  
-mllvm -unroll-threshold=100 -zopt  
-fvirtual-function-elimination -fvisibility=hidden  
-fopenmp=libomp -lomp -lamdlibm -lamdalloc -lflang
```

Fortran benchmarks:

648.exchange2_s: basepeak = yes

Peak Other Flags

C benchmarks:

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

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Software Availability: Oct-2024

Peak Other Flags (Continued)

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>

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