



# SPEC CPU®2026 Floating Point Rate Result

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## Hewlett Packard Enterprise

(Test Sponsor: HPE)

### ProLiant DL385 Gen11

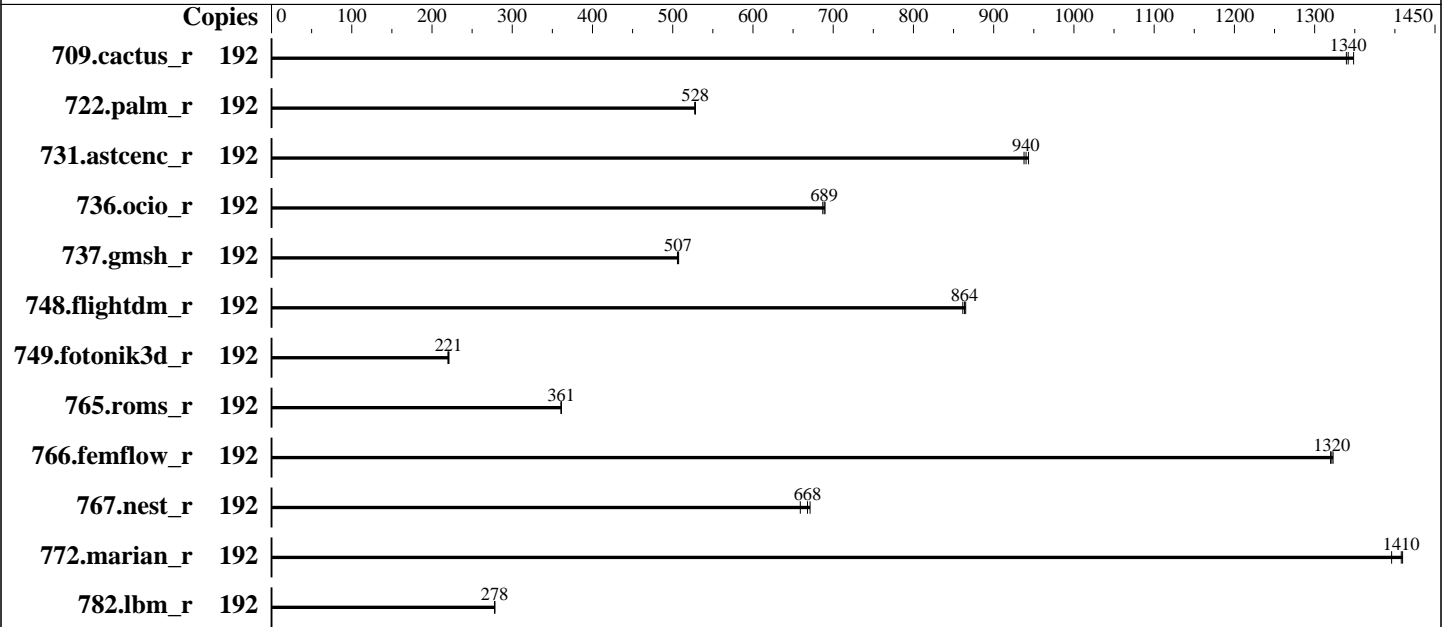
(2.40 GHz, AMD EPYC 9654)

SPECrate®2026\_fp\_base = 648

SPECrate®2026\_fp\_peak = 648

CPU2026 License: 3  
Test Sponsor: HPE  
Tested by: HPE

Test Date: Jan-2026  
Hardware Availability: Dec-2022  
Software Availability: Jan-2026



### Hardware

CPU Name: AMD EPYC 9654  
 Max MHz: 3700  
 Nominal: 2400  
 Enabled: 192 cores, 2 chips  
 Orderable: 1,2 chips  
 Cache L1: 32 KB I + 32 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: 768 GB (24 x 32 GB 2Rx8 PC5-4800B-R)  
 Storage: 1 x 480 GB NVMe SSD  
 Cooling: DLC  
 Other: None

### Software

OS: Ubuntu 24.04.3 LTS  
 Kernel 6.8.0-90-generic  
 Compiler: C/C++/Fortran: Version 5.1.0 of AOCC  
 Compiler Category: Vendor  
 Firmware: HPE BIOS Version v2.90  
 released Jan-2026  
 File System: ext4  
 System State: Run level 5 (multi-user)  
 Base Pointers: 64-bit  
 Peak Pointers: 64-bit  
 Other: None  
 Power Management: BIOS and OS is set to prefer performance at the cost of additional power usage



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## Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
709.cactus_r	192	122	1350	<u>123</u>	<u>1340</u>	123	1340	192	122	1350	<u>123</u>	<u>1340</u>	123	1340
722.palm_r	192	481	527	<u>480</u>	<u>528</u>	480	528	192	481	527	<u>480</u>	<u>528</u>	480	528
731.ascenc_r	192	172	938	171	943	<u>172</u>	<u>940</u>	192	172	938	171	943	<u>172</u>	<u>940</u>
736.ocio_r	192	<u>244</u>	<u>689</u>	245	687	244	690	192	<u>244</u>	<u>689</u>	245	687	244	690
737.gmsh_r	192	174	507	174	506	<u>174</u>	<u>507</u>	192	174	507	174	506	<u>174</u>	<u>507</u>
748.flightdm_r	192	160	861	<u>159</u>	<u>864</u>	159	865	192	160	861	<u>159</u>	<u>864</u>	159	865
749.fotonik3d_r	192	1004	221	<u>1007</u>	<u>221</u>	1010	220	192	1004	221	<u>1007</u>	<u>221</u>	1010	220
765.roms_r	192	<u>838</u>	<u>361</u>	838	361	837	361	192	<u>838</u>	<u>361</u>	838	361	837	361
766.femflow_r	192	213	1320	<u>213</u>	<u>1320</u>	213	1320	192	213	1320	<u>213</u>	<u>1320</u>	213	1320
767.nest_r	192	231	659	<u>228</u>	<u>668</u>	227	671	192	231	659	<u>228</u>	<u>668</u>	227	671
772.marian_r	192	215	1410	217	1400	<u>215</u>	<u>1410</u>	192	215	1410	217	1400	<u>215</u>	<u>1410</u>
782.lbm_r	192	<u>396</u>	<u>278</u>	395	278	396	278	192	<u>396</u>	<u>278</u>	395	278	396	278

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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.

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## Operating System Notes (Continued)

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.

## Environment Variables Notes

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

LD\_LIBRARY\_PATH =

"/home/cpu2026/amd\_rate\_aocc510\_znver5\_A\_lib/lib:/home/cpu2026/amd\_rate\_aocc510\_znver5\_A\_lib/lib32:"

MALLOC\_CONF = "retain:true"

## General Notes

Binaries were compiled on a system with 2x AMD EPYC Venice256 CPU + 2TiB

Memory using Ubuntu 24.04

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 Configurations : Parameters are selected in the order shown below

Workload Profile set to General Throughput Compute

Determinism Control set to Manual

Performance Determinism set to Power Deterministic

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

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 SMT Option set to Disabled

Workload Profile set to Custom

L2 HW Prefetcher set to Disabled

Power Regulator set to OS Control Mode

Sysinfo program /home/cpu2026/bin/sysinfo

Rev: 069f95da7e7f5d81b2ce48a82150e54f

running on admin1 Thu Jan 29 02:17:47 2026

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## Platform Notes (Continued)

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

### Table of contents

1. uname -srvm
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 255 (255.4-1ubuntu8.12)
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 -srvm
Linux 6.8.0-90-generic #91-Ubuntu SMP PREEMPT_DYNAMIC Tue Nov 18 14:14:30 UTC 2025 x86_64
```

```
2. w
02:17:47 up 17 min, 6 users, load average: 0.59, 0.14, 0.05
USER      TTY      FROM          LOGIN@      IDLE        JCPU      PCPU      WHAT
admin1    TTY      10.30.195.96  02:17      16:59      0.00s     0.02s    sshd: admin1 [priv]
admin1    TTY      10.30.195.96  02:17      16:59      0.00s     0.03s    sshd: admin1 [priv]
admin1    TTY      10.30.195.96  02:17      16:59      0.00s     0.02s    sshd: admin1 [priv]
admin1    TTY      10.30.195.96  02:17      16:59      0.00s     0.02s    sshd: admin1 [priv]
admin1    TTY      10.30.195.94  02:02      16:59      0.00s     0.05s    sshd: admin1 [priv]
admin1    TTY      10.30.195.94  02:01      16:59      0.00s     0.03s    sshd: admin1 [priv]
```

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## Platform Notes (Continued)

### 3. Username

From environment variable \$USER: root  
From the command 'logname': admin1

### 4. ulimit -a

```
time(seconds)          unlimited
file(blocks)           unlimited
data(kbytes)           unlimited
stack(kbytes)          unlimited
coredump(blocks)      0
memory(kbytes)         unlimited
locked memory(kbytes) 2097152
process                3094326
nofiles                1024
vmemory(kbytes)       unlimited
locks                  unlimited
rtprio                 0
```

### 5. sysinfo process ancestry

```
/sbin/init
sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups
sshd: admin1 [priv]
sshd: admin1@notty
sudo $SPEC/fprate.sh
/bin/bash $SPEC/fprate.sh
sudo ./run_amd_rate_aocc510_znver5_A1.py
python3 ./run_amd_rate_aocc510_znver5_A1.py
/bin/bash ./amd_rate_aocc510_znver5_A1.sh
runcpu --config amd_rate_aocc510_znver5_A1.cfg --tune base --reportable --iterations 3 fprate
runcpu --configfile amd_rate_aocc510_znver5_A1.cfg --tune base --reportable --iterations 3 --nopower
--runmode rate --tune base --size test:train:refrate fprate --nopreenv --note-preenv --logfile
$SPEC/tmp/CPU2026.001/templogs/preenv.fprate.001.0.log --lognum 001.0 --from_runcpu 2
specperl $SPEC/bin/sysinfo
$SPEC = /home/cpu2026
```

### 6. /proc/cpuinfo

```
model name      : AMD EPYC 9654 96-Core Processor
vendor_id      : AuthenticAMD
cpu family     : 25
model          : 17
stepping       : 1
microcode      : 0xa101158
bugs           : sysret_ss_attrs spectre_v1 spectre_v2 spec_store_bypass srso vmscape
TLB size       : 3584 4K pages
```

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## Platform Notes (Continued)

cpu cores : 96  
siblings : 96  
2 physical ids (chips)  
192 processors (hardware threads)

physical id 0: core ids 0-7,16-23,32-39,48-55,64-71,80-87,96-103,112-119,128-135,144-151,160-167,176-183

physical id 1: core ids 0-7,16-23,32-39,48-55,64-71,80-87,96-103,112-119,128-135,144-151,160-167,176-183

physical id 0: apicids 0-7,16-23,32-39,48-55,64-71,80-87,96-103,112-119,128-135,144-151,160-167,176-183

physical id 1: apicids

256-263,272-279,288-295,304-311,320-327,336-343,352-359,368-375,384-391,400-407,416-423,432-439

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 9654 96-Core Processor  
BIOS Model name: AMD EPYC 9654 96-Core Processor CPU @ 2.4GHz  
BIOS CPU family: 107  
CPU family: 25  
Model: 17  
Thread(s) per core: 1  
Core(s) per socket: 96  
Socket(s): 2  
Stepping: 1  
Frequency boost: enabled  
CPU(s) scaling MHz: 101%  
CPU max MHz: 2400.0000  
CPU min MHz: 1500.0000  
BogoMIPS: 4792.32

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 bpxt  
perfctr\_llc mwaitx cpb cat\_l3 cdp\_l3 hw\_pstate ssbd mba perfmon\_v2  
ibrs ibpb stibp ibrs\_enhanced vmmcall fsgsbase bmi1 avx2 smep bmi2

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```

ermms invpcid cqm rdt_a avx512f avx512dq rdseed adx smap avx512ifma
cflushopt clwb avx512cd sha_ni avx512bw avx512vl xsaveopt xsavec
xgetbv1 xsaves cqm_llc cqm_occup_llc cqm_mbm_total cqm_mbm_local
user_shstk avx512_bf16 clzero irperf xsaveerptr rdpru wbnoinvd
amd_ppin cpc amd_ibpb_ret 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 overflow_recov succor smca fsrm flush_l1d
debug_swap ibpb_exit_to_user

```

```

Virtualization: AMD-V
L1d cache: 6 MiB (192 instances)
L1i cache: 6 MiB (192 instances)
L2 cache: 192 MiB (192 instances)
L3 cache: 768 MiB (24 instances)
NUMA node(s): 24
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
NUMA node8 CPU(s): 64-71
NUMA node9 CPU(s): 72-79
NUMA node10 CPU(s): 80-87
NUMA node11 CPU(s): 88-95
NUMA node12 CPU(s): 96-103
NUMA node13 CPU(s): 104-111
NUMA node14 CPU(s): 112-119
NUMA node15 CPU(s): 120-127
NUMA node16 CPU(s): 128-135
NUMA node17 CPU(s): 136-143
NUMA node18 CPU(s): 144-151
NUMA node19 CPU(s): 152-159
NUMA node20 CPU(s): 160-167
NUMA node21 CPU(s): 168-175
NUMA node22 CPU(s): 176-183
NUMA node23 CPU(s): 184-191
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

```

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Vulnerability Retbleed: Not affected  
 Vulnerability Spec rstack overflow: Mitigation; Safe RET  
 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  
 Vulnerability Vmscape: Mitigation; IBPB before exit to userspace

From lscpu --cache:

NAME	ONE-SIZE	ALL-SIZE	WAYS	TYPE	LEVEL	SETS	PHY-LINE	COHERENCY-SIZE
L1d	32K	6M	8	Data	1	64	1	64
L1i	32K	6M	8	Instruction	1	64	1	64
L2	1M	192M	8	Unified	2	2048	1	64
L3	32M	768M	16	Unified	3	32768	1	64

8. numactl --hardware

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

```

available: 24 nodes (0-23)
node 0 cpus: 0-7
node 0 size: 31937 MB
node 0 free: 31769 MB
node 1 cpus: 8-15
node 1 size: 32209 MB
node 1 free: 32080 MB
node 2 cpus: 16-23
node 2 size: 32253 MB
node 2 free: 32106 MB
node 3 cpus: 24-31
node 3 size: 32253 MB
node 3 free: 31846 MB
node 4 cpus: 32-39
node 4 size: 32253 MB
node 4 free: 32058 MB
node 5 cpus: 40-47
node 5 size: 32253 MB
node 5 free: 32106 MB
node 6 cpus: 48-55
node 6 size: 32253 MB
node 6 free: 32082 MB
node 7 cpus: 56-63
node 7 size: 32253 MB
node 7 free: 32108 MB
node 8 cpus: 64-71
node 8 size: 32253 MB

```

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```

node 8 free: 32086 MB
node 9 cpus: 72-79
node 9 size: 32253 MB
node 9 free: 32119 MB
node 10 cpus: 80-87
node 10 size: 32253 MB
node 10 free: 32128 MB
node 11 cpus: 88-95
node 11 size: 32253 MB
node 11 free: 32070 MB
node 12 cpus: 96-103
node 12 size: 32253 MB
node 12 free: 32076 MB
node 13 cpus: 104-111
node 13 size: 32253 MB
node 13 free: 32109 MB
node 14 cpus: 112-119
node 14 size: 32253 MB
node 14 free: 32083 MB
node 15 cpus: 120-127
node 15 size: 32253 MB
node 15 free: 32098 MB
node 16 cpus: 128-135
node 16 size: 32253 MB
node 16 free: 32104 MB
node 17 cpus: 136-143
node 17 size: 32253 MB
node 17 free: 32097 MB
node 18 cpus: 144-151
node 18 size: 32253 MB
node 18 free: 32128 MB
node 19 cpus: 152-159
node 19 size: 32253 MB
node 19 free: 32128 MB
node 20 cpus: 160-167
node 20 size: 32253 MB
node 20 free: 32128 MB
node 21 cpus: 168-175
node 21 size: 32253 MB
node 21 free: 32126 MB
node 22 cpus: 176-183
node 22 size: 32253 MB
node 22 free: 32133 MB
node 23 cpus: 184-191
node 23 size: 32198 MB
node 23 free: 32065 MB
node distances:

```

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## Platform Notes (Continued)

node	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
0:	10	11	11	12	12	12	12	12	12	12	12	12	32	32	32	32	32	32	32	32	32	32	32	32
1:	11	10	11	12	12	12	12	12	12	12	12	12	32	32	32	32	32	32	32	32	32	32	32	32
2:	11	11	10	12	12	12	12	12	12	12	12	12	32	32	32	32	32	32	32	32	32	32	32	32
3:	12	12	12	10	11	11	12	12	12	12	12	12	32	32	32	32	32	32	32	32	32	32	32	32
4:	12	12	12	11	10	11	12	12	12	12	12	12	32	32	32	32	32	32	32	32	32	32	32	32
5:	12	12	12	11	11	10	12	12	12	12	12	12	32	32	32	32	32	32	32	32	32	32	32	32
6:	12	12	12	12	12	12	10	11	11	12	12	12	32	32	32	32	32	32	32	32	32	32	32	32
7:	12	12	12	12	12	12	11	10	11	12	12	12	32	32	32	32	32	32	32	32	32	32	32	32
8:	12	12	12	12	12	12	11	11	10	12	12	12	32	32	32	32	32	32	32	32	32	32	32	32
9:	12	12	12	12	12	12	12	12	12	10	11	11	32	32	32	32	32	32	32	32	32	32	32	32
10:	12	12	12	12	12	12	12	12	12	11	10	11	32	32	32	32	32	32	32	32	32	32	32	32
11:	12	12	12	12	12	12	12	12	12	11	11	10	32	32	32	32	32	32	32	32	32	32	32	32
12:	32	32	32	32	32	32	32	32	32	32	32	32	10	11	11	12	12	12	12	12	12	12	12	12
13:	32	32	32	32	32	32	32	32	32	32	32	32	11	10	11	12	12	12	12	12	12	12	12	12
14:	32	32	32	32	32	32	32	32	32	32	32	32	11	11	10	12	12	12	12	12	12	12	12	12
15:	32	32	32	32	32	32	32	32	32	32	32	32	12	12	12	10	11	11	12	12	12	12	12	12
16:	32	32	32	32	32	32	32	32	32	32	32	32	12	12	12	11	10	11	12	12	12	12	12	12
17:	32	32	32	32	32	32	32	32	32	32	32	32	12	12	12	11	11	10	12	12	12	12	12	12
18:	32	32	32	32	32	32	32	32	32	32	32	32	12	12	12	12	12	12	10	11	11	12	12	12
19:	32	32	32	32	32	32	32	32	32	32	32	32	12	12	12	12	12	12	11	10	11	12	12	12
20:	32	32	32	32	32	32	32	32	32	32	32	32	12	12	12	12	12	12	11	11	10	12	12	12
21:	32	32	32	32	32	32	32	32	32	32	32	32	12	12	12	12	12	12	12	12	10	11	11	11
22:	32	32	32	32	32	32	32	32	32	32	32	32	12	12	12	12	12	12	12	12	12	11	10	11
23:	32	32	32	32	32	32	32	32	32	32	32	32	12	12	12	12	12	12	12	12	12	11	11	10

9. /proc/meminfo  
MemTotal: 792229460 kB

10. who -r  
run-level 5 Jan 29 02:01

11. Systemd service manager version: systemd 255 (255.4-lubuntu8.12)  
Default Target Status  
graphical running

12. Services, from systemctl list-unit-files  
STATE UNIT FILES  
enabled ModemManager apparmor appport blk-availability cloud-config cloud-final cloud-init cloud-init-local console-setup cron dmesg e2scrub\_reap finalrd getty@ gpu-manager grub-common grub-initrd-fallback keyboard-setup lvm2-monitor multipathd networkd-dispatcher open-iscsi open-vm-tools pollinate rsyslog secureboot-db setvtrgb snapd sysstat systemd-networkd systemd-networkd-wait-online systemd-pstore

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# SPEC CPU®2026 Floating Point Rate Result

Copyright 2026 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

ProLiant DL385 Gen11

(2.40 GHz, AMD EPYC 9654)

**SPECrate®2026\_fp\_base = 648**

**SPECrate®2026\_fp\_peak = 648**

**CPU2026 License:** 3

**Test Sponsor:** HPE

**Tested by:** HPE

**Test Date:** Jan-2026

**Hardware Availability:** Dec-2022

**Software Availability:** Jan-2026

## Platform Notes (Continued)

```

systemd-resolved thermald tuned ua-reboot-cmds ubuntu-advantage udisks2 ufw
unattended-upgrades vgauth
enabled-runtime netplan-ovs-cleanup systemd-fsck-root systemd-remount-fs
disabled console-getty debug-shell iscsid nftables rsync serial-getty@ ssh
systemd-boot-check-no-failures systemd-conftxt systemd-network-generator
systemd-networkd-wait-online@ systemd-pcrlock-file-system systemd-pcrlock-firmware-code
systemd-pcrlock-firmware-config systemd-pcrlock-machine-id systemd-pcrlock-make-policy
systemd-pcrlock-secureboot-authority systemd-pcrlock-secureboot-policy systemd-sysext
indirect systemd-time-wait-sync systemd-timesyncd upower
masked systemd-sysupdate systemd-sysupdate-reboot uuid
cryptdisks cryptdisks-early hwclock multipath-tools-boot screen-cleanup sudo x11-common

```

-----  
13. Linux kernel boot-time arguments, from /proc/cmdline

```

BOOT_IMAGE=/boot/vmlinuz-6.8.0-90-generic
root=UUID=60685607-d408-4b5d-9478-a6a431e11442
ro

```

-----  
14. cpupower frequency-info

```

analyzing CPU 106:
  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: balanced

-----  
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

```

(Continued on next page)



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## Platform Notes (Continued)

```

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 Ubuntu 24.04.3 LTS

```

```

-----
20. Disk information
SPEC is set to: /home/cpu2026
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda2       ext4  439G   86G  331G  21% /

```

```

-----
21. /sys/devices/virtual/dmi/id
Vendor:          HPE
Product:         ProLiant DL385 Gen11
Product Family: ProLiant
Serial:          DL385G11-003

```

```

-----
22. dmidecode

```

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## Platform Notes (Continued)

Additional information from dmidecode 3.5 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:

2x Hynix HMCG88AEBRA115N 32 GB 2 rank 4800  
22x Hynix HMCG88MEBRA113N 32 GB 2 rank 4800

### 23. BIOS

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

BIOS Vendor: HPE  
BIOS Version: 2.90  
BIOS Date: 01/09/2026  
BIOS Revision: 2.90  
Firmware Revision: 1.63

## Compiler Version Notes

=====  
C | 782.lbm\_r(base)  
=====

AMD clang version 17.0.6 (CLANG: AOCC\_5.1.0-Build#1994 2025\_12\_23)  
Target: x86\_64-unknown-linux-gnu  
Thread model: posix  
InstalledDir: /opt/AMD/aocc/aocc-compiler-5.1.0/bin  
=====

=====  
C++ | 731.astcenc\_r(base) 736.ocio\_r(base) 748.flightdm\_r(base)  
| 766.femflow\_r(base) 767.nest\_r(base) 772.marian\_r(base)  
=====

AMD clang version 17.0.6 (CLANG: AOCC\_5.1.0-Build#1994 2025\_12\_23)  
Target: x86\_64-unknown-linux-gnu  
Thread model: posix  
InstalledDir: /opt/AMD/aocc/aocc-compiler-5.1.0/bin  
=====

=====  
C++, C | 709.cactus\_r(base) 737.gmsh\_r(base)  
=====

AMD clang version 17.0.6 (CLANG: AOCC\_5.1.0-Build#1994 2025\_12\_23)  
Target: x86\_64-unknown-linux-gnu  
Thread model: posix  
InstalledDir: /opt/AMD/aocc/aocc-compiler-5.1.0/bin  
=====

(Continued on next page)



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**Tested by:** HPE

**Test Date:** Jan-2026

**Hardware Availability:** Dec-2022

**Software Availability:** Jan-2026

## Compiler Version Notes (Continued)

-----  
=====  
Fortran | 722.palm\_r(base) 749.fotonik3d\_r(base) 765.roms\_r(base)  
-----

AMD clang version 17.0.6 (CLANG: AOCC\_5.1.0-Build#1994 2025\_12\_23)

Target: x86\_64-unknown-linux-gnu

Thread model: posix

InstalledDir: /opt/AMD/aocc/aocc-compiler-5.1.0/bin  
-----

## Base Compiler Invocation

C benchmarks:

clang

C++ benchmarks:

clang++

Fortran benchmarks:

flang

Benchmarks using both C and C++:

clang++ clang

## Base Portability Flags

709.cactus\_r: -DSPEC\_LP64

722.palm\_r: -DSPEC\_LP64

731.ascenc\_r: -DSPEC\_LP64

736.ocio\_r: -fno-finite-math-only -DSPEC\_LP64

737.gmsh\_r: -fno-fast-math -DSPEC\_LP64

748.flightdm\_r: -fno-reciprocal-math -DSPEC\_LP64

749.fotonik3d\_r: -DSPEC\_LP64

765.roms\_r: -DSPEC\_LP64

766.femflow\_r: -DSPEC\_LP64

767.nest\_r: -fno-finite-math-only -DSPEC\_LP64

772.marian\_r: -DSPEC\_LP64

782.lbm\_r: -DSPEC\_LP64



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## Base Optimization Flags

C benchmarks:

```
-m64 -std=c18 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-ldist-scalar-expand -fenable-aggressive-gather
-ffast-math -O3 -march=znver5 -fveclib=AMDLIBM -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 -lamdalloc
-lflang
```

C++ benchmarks:

```
-m64 -std=c++17 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-x86-use-vzeroupper=false -Wl,-mllvm -Wl,-extra-inliner
-ffast-math -O3 -march=znver5 -fveclib=AMDLIBM -flto
-mllvm -unroll-threshold=100 -mllvm -loop-unswitch-threshold=200000
-mllvm -reduce-array-computations=3 -zopt -lamdlibm -lamdalloc
-lflang
```

Fortran benchmarks:

```
-m64 -Mstandard -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-enable-X86-prefetching
-Wl,-mllvm -Wl,-enable-aggressive-gather=true
-Wl,-mllvm -Wl,-enable-masked-gather-sequence=false -ffast-math -O3
-march=znver5 -fveclib=AMDLIBM -flto -Mrecursive -funroll-loops
-mllvm -lsr-in-nested-loop -mllvm -reduce-array-computations=3
-fepilog-vectorization-of-inductions -zopt -lamdlibm -lamdalloc
-lflang
```

Benchmarks using both C and C++:

```
-m64 -std=c++17 -std=c18 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-x86-use-vzeroupper=false -Wl,-mllvm -Wl,-extra-inliner
-ffast-math -O3 -march=znver5 -fveclib=AMDLIBM -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 -mllvm -unroll-threshold=100
-mllvm -loop-unswitch-threshold=200000 -lamdlibm -lamdalloc -lflang
```

## Peak Optimization Flags

C benchmarks:

(Continued on next page)



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**Hardware Availability:** Dec-2022  
**Software Availability:** Jan-2026

## Peak Optimization Flags (Continued)

782.lbm\_r: basepeak = yes

C++ benchmarks:

731.astcenc\_r: basepeak = yes

736.ocio\_r: basepeak = yes

748.flightdm\_r: basepeak = yes

766.femflow\_r: basepeak = yes

767.nest\_r: basepeak = yes

772.marian\_r: basepeak = yes

Fortran benchmarks:

722.palm\_r: basepeak = yes

749.fotonik3d\_r: basepeak = yes

765.roms\_r: basepeak = yes

Benchmarks using both C and C++:

709.cactus\_r: basepeak = yes

737.gmsh\_r: basepeak = yes

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

<http://www.spec.org/cpu2026/results/flags/HPE-Platform-Flags-AMD-Turin-rev1.11.html>  
<http://www.spec.org/cpu2026/results/flags/aocc-flags.2026-05-04.html>

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

<http://www.spec.org/cpu2026/results/flags/HPE-Platform-Flags-AMD-Turin-rev1.11.xml>  
<http://www.spec.org/cpu2026/results/flags/aocc-flags.2026-05-04.xml>

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