



# SPEC CPU®2026 Floating Point Rate Result

Copyright 2026 Standard Performance Evaluation Corporation

## NVIDIA

(Test Sponsor: Arm)

### NVIDIA DGX Spark (3.9 GHz NVIDIA GB10 CPU)

SPECrate®2026\_fp\_base = 75.0

SPECrate®2026\_fp\_peak = Not Run

CPU2026 License: 9044

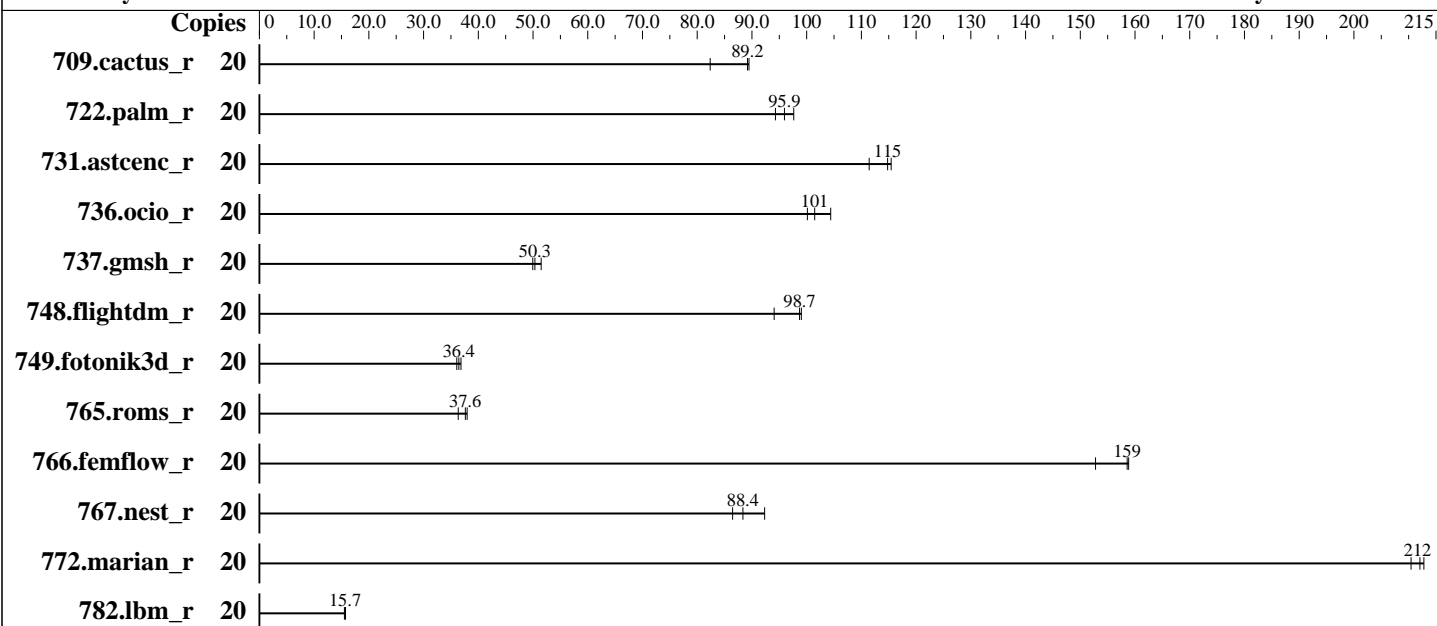
Test Sponsor: Arm

Tested by: Arm

Test Date: Apr-2026

Hardware Availability: Oct-2025

Software Availability: Feb-2026



### Hardware

CPU Name: NVIDIA GB10  
 Max MHz: 4004  
 Nominal: 3900  
 Enabled: 20 (10x Cortex-X925, 10x Cortex-A725) cores, 1 chip  
 Orderable: 1 chips  
 Cache L1: 64 KB I + 64 KB D on chip per core  
 L2: 2 MB I+D on chip per core; 512 KB I+D on chip per core  
 L3: 16 MB I+D on chip per 10 core cluster (Cluster 1); 8 MB I+D on chip per 10 core cluster (Cluster 0)  
 Other: None  
 Memory: 128 GB (LPDDR5X-8533 MT/s)  
 Storage: 1 x 3.7 TB NVMe SSD  
 Cooling: Air  
 Other: None

### Software

OS: Ubuntu 24.04.3 LTS  
 6.14.0-1013-nvidia  
 Compiler: C/C++/Fortran: Version 22.1.0 of LLVM  
 Compiler Category: Community  
 Firmware: Version 5.36\_0ACUM018 released Aug-2025  
 File System: ext4  
 System State: Run level 5 (graphical multi-user)  
 Base Pointers: 64-bit  
 Peak Pointers: Not Applicable  
 Other: None  
 Power Management: OS 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	20	208	82.4	192	89.5	<b><u>192</u></b>	<b><u>89.2</u></b>							
722.palm_r	20	280	94.3	<b><u>275</u></b>	<b><u>95.9</u></b>	270	97.6							
731.ascenc_r	20	<b><u>146</u></b>	<b><u>115</u></b>	146	115	151	111							
736.ocio_r	20	<b><u>172</u></b>	<b><u>101</u></b>	168	104	175	100							
737.gmsh_r	20	184	50.0	178	51.5	<b><u>182</u></b>	<b><u>50.3</u></b>							
748.flightdm_r	20	<b><u>145</u></b>	<b><u>98.7</u></b>	152	94.1	145	99.0							
749.fotonik3d_r	20	641	36.1	<b><u>634</u></b>	<b><u>36.4</u></b>	628	36.8							
765.roms_r	20	830	38.0	<b><u>837</u></b>	<b><u>37.6</u></b>	867	36.3							
766.femflow_r	20	192	153	185	159	<b><u>185</u></b>	<b><u>159</u></b>							
767.nest_r	20	172	92.3	<b><u>180</u></b>	<b><u>88.4</u></b>	183	86.5							
772.marian_r	20	150	210	<b><u>149</u></b>	<b><u>212</u></b>	148	213							
782.lbm_r	20	728	15.7	<b><u>732</u></b>	<b><u>15.7</u></b>	738	15.5							

SPECrate®2026\_fp\_base = 75.0

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

## Compiler Notes

The compiler used was release candidate 2 of llvm 22.1.0, downloaded from [github.com/llvm/llvm-project/releases/download/llvmorg-22.1.0-rc2](https://github.com/llvm/llvm-project/releases/download/llvmorg-22.1.0-rc2) built locally with GCC14 with default flags and clang, flang and lld projects following the instructions detailed here: <https://llvm.org/docs/CMake.html>

## Operating System Notes

'ulimit -s unlimited' was used to set environment stack size limit  
THP was enabled by running `$echo always | sudo tee /sys/kernel/mm/transparent_hugepage/enabled`

## Environment Variables Notes

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

LD\_LIBRARY\_PATH =  
"/opt/llvm/llvm-22.1.0-rc2/lib64/:/opt/llvm/llvm-22.1.0-rc2/lib/:/lib64"

## General Notes

CPU consists of 2 heterogeneous clusters: with L3 of 8MB and 16MB respectively.  
Each CPU cluster is made up of 5 e-cores and 5 p-cores



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## Platform Notes

sysinfo program /home/speccputest/cpu2026/bin/sysinfo  
Rev: 069f95da7e7f5d81b2ce48a82150e54f  
running on spark-ca5f Fri Apr 3 09:59:46 2026

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-lubuntu8.11)
12. Failed units, from systemctl list-units --state=failed
13. Services, from systemctl list-unit-files
14. Linux kernel boot-time arguments, from /proc/cmdline
15. cpupower frequency-info
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 6.14.0-1013-nvidia #13-Ubuntu SMP PREEMPT_DYNAMIC Wed Oct 29 06:01:19 UTC 2025 aarch64
```

```
2. w
09:59:46 up 1 day, 1 min, 3 users, load average: 0.00, 0.00, 0.00
USER      TTY      FROM          LOGIN@      IDLE        JCPU      PCPU      WHAT
speccput  tty1    10.57.78.231  07:25      24:01m    0.00s    ?        sshd: speccputest [priv]
gdm       tty1    -              Thu09      24:01m    44.01s   ?        /usr/libexec/gsd-printer
```

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## Platform Notes (Continued)

### 3. Username

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

### 4. ulimit -a

```
time(seconds)          unlimited
file(blocks)           unlimited
data(kbytes)           unlimited
stack(kbytes)          unlimited
coredump(blocks)      0
memory(kbytes)         unlimited
locked memory(kbytes) 15688992
process                511872
nofiles                1024
vmemory(kbytes)       unlimited
locks                  unlimited
rtprio                 0
```

### 5. sysinfo process ancestry

```
/sbin/init splash
tmux
-bash
sudo su
sudo su
su
bash
runcpu --action=run --config=llvm-rc-linux-aarch64-dgx-spark --iterations=3 --copies=20 --reportable fprate
runcpu --action run --configfile llvm-rc-linux-aarch64-dgx-spark --iterations 3 --copies 20 --reportable
--nopower --runmode rate --tune base --size refrate fprate --nopreenv --note-preenv --logfile
$SPEC/tmp/CPU2026.014/templogs/preenv.fprate.014.0.log --lognum 014.0 --from_runcpu 2
specperl $SPEC/bin/sysinfo -f
$SPEC = /home/speccputest/cpu2026
```

### 6. /proc/cpuinfo

```
CPU implementer : 0x41
CPU architecture: 8
CPU variant : 0x0
CPU part : 0xd85
CPU part : 0xd87
CPU revision : 1
Features : fp asimd evtstrm aes pmull sha1 sha2 crc32 atomics fphp asimdhp cpuid asimdrdm jscvt
fcma lrcpc dcpop sha3 sm3 sm4 asimddp sha512 sve asimdfhm dit uscat ilrcpc flagm sb
paca pacg dcpodp sve2 sveaes svepmull svebitperm svesha3 svesm4 flagm2 frint svei8mm
svebf16 i8mm bf16 dgh bti ecv afp wfx
```

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## Platform Notes (Continued)

WARNING: the number of "processors" from /proc/cpuinfo does not seem to match the number of hardware threads as reported by lscpu. Please verify counts independently.

### 7. lscpu

From lscpu from util-linux 2.39.3:

```

Architecture:                aarch64
CPU op-mode(s):              64-bit
Byte Order:                  Little Endian
CPU(s):                       20
On-line CPU(s) list:         0-19
Vendor ID:                   ARM
BIOS Vendor ID:              NVIDIA
Model name:                   Cortex-X925
BIOS Model name:             GB10 Spark CPU @ 3.9GHz
BIOS CPU family:             258
Model:                       1
Thread(s) per core:          1
Core(s) per socket:          10
Socket(s):                   1
Stepping:                    r0p1
CPU(s) scaling MHz:          87%
CPU max MHz:                  4004.0000
CPU min MHz:                  1378.0000
BogoMIPS:                    2000.00

```

```

Flags:                        fp asimd evtstrm aes pmull sha1 sha2 crc32 atomics fphp asimdhp
                               cpuid asimdrdm jscvt fcma lrcpc dcpop sha3 sm3 sm4 asimddp sha512
                               sve asimdfhm dit uscat ilrcpc flagm sb paca pacg dcpodp sve2
                               sveaes svepmull svebitperm svesha3 svesm4 flagm2 frint svei8mm
                               svebf16 i8mm bf16 dgh bti ecv afp wfxt

```

```

Model name:                   Cortex-A725
BIOS Model name:             GB10 Spark CPU @ 3.9GHz
BIOS CPU family:             258
Model:                       1
Thread(s) per core:          1
Core(s) per socket:          10
Socket(s):                   1
Stepping:                    r0p1
CPU(s) scaling MHz:          90%
CPU max MHz:                  2860.0000
CPU min MHz:                  338.0000
BogoMIPS:                    2000.00

```

```

Flags:                        fp asimd evtstrm aes pmull sha1 sha2 crc32 atomics fphp asimdhp
                               cpuid asimdrdm jscvt fcma lrcpc dcpop sha3 sm3 sm4 asimddp sha512
                               sve asimdfhm dit uscat ilrcpc flagm sb paca pacg dcpodp sve2
                               sveaes svepmull svebitperm svesha3 svesm4 flagm2 frint svei8mm

```

(Continued on next page)



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## Platform Notes (Continued)

```

svebf16 i8mm bf16 dgh bti ecv afp wfxt
Lld cache: 1.3 MiB (20 instances)
Lli cache: 1.3 MiB (20 instances)
L2 cache: 25 MiB (20 instances)
L3 cache: 24 MiB (2 instances)
NUMA node(s): 1
NUMA node0 CPU(s): 0-19
Vulnerability Gather data sampling: Not affected
Vulnerability Ghostwrite: Not affected
Vulnerability Indirect target selection: 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; __user pointer sanitization
Vulnerability Spectre v2: Mitigation; CSV2, BHB
Vulnerability Srbds: Not affected
Vulnerability Tsa: Not affected
Vulnerability Tsx async abort: Not affected
Vulnerability Vmscape: Not affected

```

From lscpu --cache:

NAME	ONE-SIZE	ALL-SIZE	WAYS	TYPE	LEVEL	SETS	PHY-LINE	COHERENCY-SIZE
Lld	64K	1.3M	4	Data	1	256		64
Lli	64K	1.3M	4	Instruction	1	256		64
L2	512K	25M	8	Unified	2	1024		64
L3	8M	24M	16	Unified	3	8192		64

8. numactl --hardware

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

```

available: 1 nodes (0)
node 0 cpus: 0-19
node 0 size: 122570 MB
node 0 free: 77150 MB
node distances:
node 0
0: 10

```

9. /proc/meminfo

MemTotal: 125511964 kB

(Continued on next page)



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## Platform Notes (Continued)

10. who -r  
run-level 5 Apr 2 09:58

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

12. Failed units, from systemctl list-units --state=failed  
UNIT LOAD ACTIVE SUB DESCRIPTION  
\* postfix@-.service loaded failed failed Postfix Mail Transport Agent (instance -)  
Legend: LOAD -> Reflects whether the unit definition was properly loaded.  
ACTIVE -> The high-level unit activation state, i.e. generalization of SUB.  
SUB -> The low-level unit activation state, values depend on unit type.  
1 loaded units listed.

13. Services, from systemctl list-unit-files  
STATE UNIT FILES  
enabled ModemManager NetworkManager NetworkManager-dispatcher accounts-daemon anacron apparmor  
apport avahi-daemon blk-availability bluetooth cfg-iommu cloud-config cloud-final  
cloud-init cloud-init-local console-setup containerd cron cups cups-browsed dgx-dashboard  
dgx-dashboard-admin dgx-release dgxstation-desktop dmesg docker e2scrub\_reap finalrd  
getty@ gnome-remote-desktop grub-common grub-initrd-fallback kdump-tools keyboard-setup  
lvm2-monitor multipathd networkd-dispatcher nv-cpu-governor nv-docker-gpus  
nvidia-cdi-refresh nvidia-conf-xconfig nvidia-console-settings nvidia-disable-aqc-nic  
nvidia-disable-init-on-alloc nvidia-disable-numa-balancing nvidia-earlycon  
nvidia-enable-power-meter-cap nvidia-grubserial nvidia-hibernate  
nvidia-nvme-interrupt-coalescing nvidia-pci-realloc nvidia-persistenced nvidia-raid-config  
nvidia-redfish-config nvidia-resume nvidia-spark-run-apt-upgrade-once nvidia-suspend  
nvme-fc-boot-connections nvmmf-autoconnect open-iscsi open-vm-tools openvpn pollinate  
postfix ras-mc-ctl rasdaemon restart-resolved rsyslog samba-ad-dc secureboot-db setvtrgb  
smartmontools snapd srp\_daemon ssl-cert switcheroo-control sysstat systemd-pstore  
systemd-resolved systemd-timesyncd ua-reboot-cmds ubuntu-advantage udisks2 ufw vgauth  
wpa\_supplicant  
enabled-runtime netplan-ovs-cleanup systemd-fsck-root systemd-remount-fs  
disabled NetworkManager-wait-online brltty console-getty debug-shell dgx-oobe dgx-oobe-admin  
dgx-oobe-hostname dgx-oobe-hotspot dgx-oobe-hotspot-watchdog dgx-oobe-ubuntu-pro-activate  
dnsmasq dnsmasq@ iperf3 ipmievd iscsid nftables nmbd nvidia-desktop-default-snaps  
nvidia-dgx-sol nvidia-dgx-telemetry nvidia-remove-gnome-software-once  
nvidia-spark-mlnx-firmware-manager nvidia-spark-remove-once nvidia-suspend-then-hibernate  
openvpn-client@ openvpn-server@ openvpn@ postfix-resolvconf quota quotarpc rpcbind rsync  
rtkit-daemon setup-oem-config-override smbd speech-dispatcherd srp\_daemon\_port@ ssh  
systemd-boot-check-no-failures systemd-confext systemd-network-generator systemd-networkd

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### Platform Notes (Continued)

```

systemd-networkd-wait-online 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-sysexit systemd-time-wait-sync upower
wpa_supplicant-nl80211@ wpa_supplicant-wired@ wpa_supplicant@
generated speech-dispatcher
indirect postfix@ saned@ serial-getty@ spice-vdagentd systemd-sysupdate systemd-sysupdate-reboot
uidd
masked alsa-utils cryptdisks cryptdisks-early hwclock multipath-tools-boot nfs-common nvsm
nvsm-api-gateway nvsm-core nvsm-exporter nvsm-mqmt nvsm-notifier saned screen-cleanup sudo
x11-common

```

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

```

BOOT_IMAGE=/boot/vmlinuz-6.14.0-1013-nvidia
root=UUID=d27bfd26-ff30-400e-9eca-9cdf73de9406
ro
init_on_alloc=0
console=tty0
plymouth.ignore-serial-console
plymouth.use-simplydrm
earlycon=uart,mmio32,0x16A00000
console=tty0
console=ttyS0,921600
crashkernel=1G-:0M
quiet
splash
pci=pcie_bus_safe
vt.handoff=7

```

#### 15. cpupower frequency-info

```

analyzing CPU 17:
current policy: frequency should be within 1.38 GHz and 3.98 GHz.
The governor "performance" may decide which speed to use
within this range.

```

#### 16. sysctl

```

kernel.numa_balancing          0
kernel.randomize_va_space      2
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                 20

```

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### Platform Notes (Continued)

```

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                      60
vm.watermark_boost_factor         15000
vm.watermark_scale_factor          10
vm.zone_reclaim_mode              0

```

```

-----
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
dgx-release DGX_NAME="DGX Spark"

```

```

-----
20. Disk information
SPEC is set to: /home/speccputest/cpu2026
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/nvme0n1p2 ext4  3.7T  614G  2.9T  18% /

```

```

-----
21. /sys/devices/virtual/dmi/id
Vendor:          NVIDIA
Product:         NVIDIA_DGX_Spark
Product Family:  DGX Spark
Serial:          1984025007657

```

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## Platform Notes (Continued)

### 22. dmidecode

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:

1x SK Hynix None 128 GB 8533

### 23. BIOS

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

BIOS Vendor: American Megatrends International, LLC.

BIOS Version: 5.36\_0ACUM018

BIOS Date: 08/06/2025

BIOS Revision: 5.36

## Compiler Version Notes

C | 782.lbm\_r(base)

clang version 22.1.0-rc2

Target: aarch64-unknown-linux-gnu

Thread model: posix

InstalledDir: /opt/llvm/llvm-22.1.0-rc2/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)

clang version 22.1.0-rc2

Target: aarch64-unknown-linux-gnu

Thread model: posix

InstalledDir: /opt/llvm/llvm-22.1.0-rc2/bin

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

clang version 22.1.0-rc2

Target: aarch64-unknown-linux-gnu

Thread model: posix

(Continued on next page)



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## Compiler Version Notes (Continued)

InstalledDir: /opt/llvm/llvm-22.1.0-rc2/bin

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

-----  
flang version 22.1.0-rc2

Target: aarch64-unknown-linux-gnu

Thread model: posix

InstalledDir: /opt/llvm/llvm-22.1.0-rc2/bin  
-----

## Base Compiler Invocation

C benchmarks:

clang

C++ benchmarks:

clang++

Fortran benchmarks:

flang-new

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-associative-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



# SPEC CPU®2026 Floating Point Rate Result

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**NVIDIA**

(Test Sponsor: Arm)

**NVIDIA DGX Spark**  
(3.9 GHz NVIDIA GB10 CPU)

SPECrate®2026\_fp\_base = 75.0

SPECrate®2026\_fp\_peak = Not Run

**CPU2026 License:** 9044

**Test Sponsor:** Arm

**Tested by:** Arm

**Test Date:** Apr-2026

**Hardware Availability:** Oct-2025

**Software Availability:** Feb-2026

## Base Optimization Flags

C benchmarks:

-fuse-ld=lld -std=c18 -g -O3 -mcpu=native -ffast-math -flto=thin  
-fomit-frame-pointer

C++ benchmarks:

-fuse-ld=lld -std=c++17 -g -O3 -mcpu=native -ffast-math -flto=thin  
-fomit-frame-pointer

Fortran benchmarks:

-fuse-ld=lld -std=f2018 -g -O3 -mcpu=native -ffast-math -flto=thin  
-fomit-frame-pointer

Benchmarks using both C and C++:

-fuse-ld=lld -std=c++17 -std=c18 -g -O3 -mcpu=native -ffast-math  
-flto=thin -fomit-frame-pointer

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

<http://www.spec.org/cpu2026/results/flags/llvm-rev-A2.html>

<http://www.spec.org/cpu2026/results/flags/Nvidia-Platform-Settings.html>

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

<http://www.spec.org/cpu2026/results/flags/llvm-rev-A2.xml>

<http://www.spec.org/cpu2026/results/flags/Nvidia-Platform-Settings.xml>

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For questions about this result, please contact the tester. For other inquiries, please contact [info@spec.org](mailto:info@spec.org).

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