



SPEC CPU®2026 Floating Point Rate Result

Copyright 2026 Standard Performance Evaluation Corporation

GIGA-BYTE TECHNOLOGY CO., LTD.
(Test Sponsor: Ampere Computing, Inc.)
R2A3-T40-AAV1
(3.20 GHz AmpereOneM A192-32M)

SPECrate®2026_fp_base = 310
SPECrate®2026_fp_energy_base = 43.9
SPECrate®2026_fp_peak = 314
SPECrate®2026_fp_energy_peak = 44.7

CPU2026 License: 6412

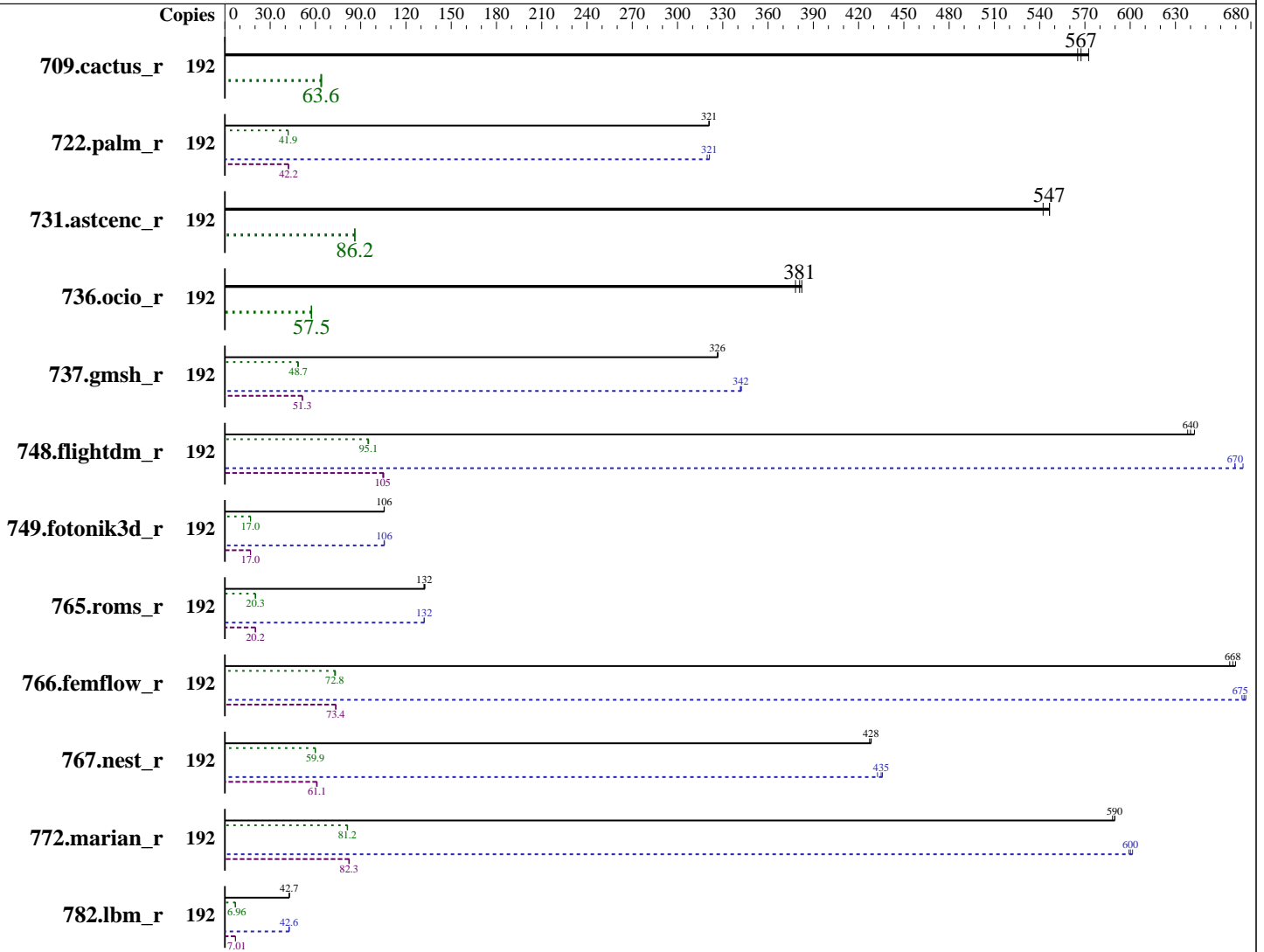
Test Sponsor: Ampere Computing, Inc.

Tested by: Ampere Computing, Inc.

Test Date: Feb-2026

Hardware Availability: Nov-2025

Software Availability: Oct-2025



Hardware

CPU Name: AmpereOneM A192-32M
Max MHz: 3200
Nominal: 3200
Enabled: 192 cores, 1 chip
Orderable: 1 chip
Cache L1: 16 KB I + 64 KB D on chip per core
L2: 2 MB I+D on chip per core
L3: 64 MB I+D on chip per chip

(Continued on next page)

Software

OS: Fedora Linux 43 (Server Edition)
6.17.5-200.64K_PS.fc42.aarch64
Compiler: C/C++/Fortran: Version 15.2.0 of GCC
Compiler Category: Community
Firmware: Version 5.4.5.1 released Oct-2025
File System: xfs
System State: Run level 3 (multi-user)
Base Pointers: 64-bit

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Hardware (Continued)

Other: None
Memory: 768 GB (12 x 64 GB 2Rx4 PC5-5600B-R)
Storage: 1 x 960 GB Samsung M.2 (MZ1L2960HCJR-00A07)
Cooling: Air
Other: None

Software (Continued)

Peak Pointers: 64-bit
Other: Jemalloc memory allocator library v5.3.0
Power Management: OS CPU governor set to "performance"

Power

Max. Power (W): 838.2
Idle Power (W): 234.7
Min. Temperature (C): 20.44
Elevation (m): 60
Line Standard: 120 V / 60 Hz / 1 phase / 2 wire
Provisioning: Line powered

Power Settings

Management FW: Version 4.06 of MegaRAC BMC
Memory Mode: Normal

Power-Relevant Hardware

Power Supply: 1 x 1600 W (non-redundant)
Details: 1+1 1600W 80 PLUS Titanium redundant power supplies
AC Power Supply
Backplane: PCIe Gen5 x4
Other Storage: Embedded SATA Controller
Storage Model #: R2A3-T40-AAV1
NICs Installed: 1 x Mellanox Technologies MT27710 Family @ 25 GbE (2 ports ethernet)
NICs Enabled (FW/OS): 2 / 1
NICs Connected/Speed: 1 @ 25 Gbps
Other HW Model #: Fan configuration is 4 x 80x80x38mm

Power Analyzer

Power Analyzer: cpu-reference-ptd:8000
Hardware Vendor: Yokogawa
Model: WT-310
Serial Number: T11733285
Input Connection: Serial over USB
Metrology Institute: NIST
Calibration By: Yokogawa USA
Calibration Label: T126622
Calibration Date: 13-Aug-2025
PTDaemon® Version: 1.11.3 (0c074d7d; 2025-10-15)
Setup Description: Directly Connected to PSU 1
Current Ranges Used: 10A
Voltage Range Used: 150V

Temperature Meter

Temperature Meter: cpu-reference-ptd:9000
Hardware Vendor: PCSensor
Model: USB9097+DS18B20
Serial Number: N/A
Input Connection: USB
PTDaemon Version: 1.11.3 (0c074d7d; 2025-10-15)
Setup Description: In front of SUT front panel primary air inlet

Base Results Table

Benchmark	Copies	Seconds	Ratio	Energy (kJ)	Energy Ratio	Average Power	Maximum Power	Seconds	Ratio	Energy (kJ)	Energy Ratio	Average Power	Maximum Power	Seconds	Ratio	Energy (kJ)	Energy Ratio	Average Power	Maximum Power
709.cactus_r	192	288	572	218	64.2	758	834	291	565	220	63.7	754	831	290	567	220	63.6	758	835

Table continues on next page. Results appear in the order in which they were run. Bold underlined text indicates a median measurement.



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Base Results Table (Continued)

Benchmark	Copies	Seconds	Ratio	Energy (kJ)	Energy Ratio	Average Power	Maximum Power	Seconds	Ratio	Energy (kJ)	Energy Ratio	Average Power	Maximum Power	Seconds	Ratio	Energy (kJ)	Energy Ratio	Average Power	Maximum Power
722.palm_r	192	790	321	513	41.9	650	725	790	321	514	41.9	650	724	790	321	513	41.9	650	724
731.ascenc_r	192	295	547	156	86.2	529	553	295	547	156	86.2	529	552	297	542	156	86.0	526	553
736.ocio_r	192	444	378	246	57.2	554	668	441	381	244	57.5	554	660	439	382	245	57.5	557	667
737.gmsh_r	192	270	326	152	48.7	562	664	270	327	152	48.5	565	662	270	326	153	48.3	566	660
748.flightdm_r	192	214	643	121	95.3	567	598	215	640	121	95.1	565	598	215	638	122	94.8	566	598
749.fotonik3d_r	192	2101	106	1110	17.0	531	554	2104	105	1120	17.0	530	552	2102	106	1120	17.0	532	554
765.roms_r	192	2281	133	1300	20.3	571	594	2288	132	1300	20.3	570	597	2292	132	1310	20.2	570	597
766.femflow_r	192	423	666	327	73.0	772	821	422	668	328	72.8	777	821	421	670	325	73.3	774	819
767.nest_r	192	355	428	212	59.9	595	729	356	428	212	59.9	595	718	356	427	212	59.9	594	719
772.marian_r	192	514	590	314	81.2	610	691	515	588	313	81.3	608	682	514	590	314	81.1	611	693
782.lbm_r	192	2574	42.7	1410	6.96	547	559	2579	42.7	1410	6.95	546	559	2578	42.7	1410	6.96	546	560

SPECrate®2026_fp_base = 310

SPECrate®2026_fp_energy_base = 43.9

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

Peak Results Table

Benchmark	Copies	Seconds	Ratio	Energy (kJ)	Energy Ratio	Average Power	Maximum Power	Seconds	Ratio	Energy (kJ)	Energy Ratio	Average Power	Maximum Power	Seconds	Ratio	Energy (kJ)	Energy Ratio	Average Power	Maximum Power
709.cactus_r	192	288	572	218	64.2	758	834	291	565	220	63.7	754	831	290	567	220	63.6	758	835
722.palm_r	192	789	321	511	42.1	647	733	793	320	511	42.1	644	731	789	321	510	42.2	646	718
731.ascenc_r	192	295	547	156	86.2	529	553	295	547	156	86.2	529	552	297	542	156	86.0	526	553
736.ocio_r	192	444	378	246	57.2	554	668	441	381	244	57.5	554	660	439	382	245	57.5	557	667
737.gmsh_r	192	258	342	144	51.3	559	663	257	342	144	51.4	558	663	258	342	144	51.4	557	663
748.flightdm_r	192	204	675	110	105	538	560	205	669	110	105	536	560	205	670	110	105	538	560
749.fotonik3d_r	192	2100	106	1120	17.0	532	553	2104	105	1120	17.0	531	553	2101	106	1120	17.0	531	553
765.roms_r	192	2289	132	1310	20.2	570	595	2290	132	1310	20.2	570	596	2288	132	1310	20.2	571	593
766.femflow_r	192	417	675	325	73.4	779	820	416	677	324	73.6	778	822	418	674	325	73.4	778	819
767.nest_r	192	349	436	208	61.1	594	729	350	435	208	61.1	593	736	352	433	209	60.7	593	730
772.marian_r	192	504	602	309	82.5	613	696	506	599	310	82.2	612	695	505	600	310	82.3	613	694
782.lbm_r	192	2583	42.6	1390	7.03	540	555	2586	42.5	1390	7.03	539	555	2585	42.6	1400	7.01	540	555

SPECrate®2026_fp_peak = 314

SPECrate®2026_fp_energy_peak = 44.7

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

Compiler Notes

Binaries were compiled on a system with 1x AmpereOneM CPU chip + 768 GB Memory using Fedora Linux 42

Submit Notes

The config file option 'submit' was used.
'numactl' was used to bind copies to the cores.



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Operating System Notes

```
'ulimit -s unlimited' was used to set environment stack size
Set dirty_ratio=8 to limit dirty cache to 8% of memory
echo 8 | sudo tee /proc/sys/vm/dirty_ratio
Set swappiness=1 to swap only if necessary
echo 1 | sudo tee /proc/sys/vm/swappiness
Set zone_reclaim_mode=1 to free local node memory and avoid remote memory
echo 1 | sudo tee /proc/sys/vm/zone_reclaim_mode
Set drop_caches=3 to reset caches before invoking runcpu
echo 3 | sudo tee /proc/sys/vm/drop_caches
Set numa_balancing=0 to disable automatic numa balancing
echo 0 | sudo tee /proc/sys/kernel/numa_balancing
Switch off all ktune and tuned settings
sudo tuned-adm off
Transparent huge pages set to 'never'
sudo bash -c "echo never > /sys/kernel/mm/transparent_hugepage/enabled"

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

Environment Variables Notes

Environment variables set by runcpu before the start of the run:
LD_LIBRARY_PATH =
"/home/amptest/workspace/sir2026_pkg_verify/ampere_spec2026/spec2026/jemalloc/install/lib:/home/amptest/workspace/sir2026_pkg_verify/ampere_spec2026/spec2026/gcc/install/lib64:/home/amptest/ampere_spec2026/spec2026/jemalloc/install/lib:/home/amptest/ampere_spec2026/spec2026/gcc/install/lib64"
MALLOC_CONF = "thp:never,dirty_decay_ms:-1,muzzy_decay_ms:-1,retain:true"

General Notes

Jemalloc v5.3.0 is available via
<https://github.com/jemalloc/jemalloc/releases/download/5.3.0/jemalloc-5.3.0.tar.bz2>
It was built on Fedora Linux 42 using Version 15.2.0 of GCC
The configure options are
"--with-lg-page=16" for building libjemalloc.so, and
"--with-lg-quantum=3 --with-lg-page=16" for building libjemalloc_ext.so
Tuned MALLOC_CONF in terms of <https://jemalloc.net/jemalloc.3.html>

NA: The test sponsor attests, as of date of publication, that CVE-2017-5754 (Meltdown) is mitigated in the system as tested and documented.

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General Notes (Continued)

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

Note: lscpu is not able to detect the SLC.
SLC is defined at <https://developer.arm.com/documentation/100180/0103/bry1436285730281>

Sysinfo program /home/amptest/workspace/sir2026_pkg_verify/ampere_spec2026/spec2026/bin/sysinfo
Rev: 069f95da7e7f5d81b2ce48a82150e54f
running on ampereone Wed Feb 4 18:20:32 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. Systemd service manager version: systemd 258 (258-1.fc43)
 11. Services, from systemctl list-unit-files
 12. Linux kernel boot-time arguments, from /proc/cmdline
 13. cpupower frequency-info
 14. tuned-adm active
 15. sysctl
 16. /sys/kernel/mm/transparent_hugepage
 17. /sys/kernel/mm/transparent_hugepage/khugepaged
 18. OS release
 19. Disk information
 20. /sys/devices/virtual/dmi/id
 21. dmidecode
 22. BIOS
- -----

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Platform Notes (Continued)

1. `uname -srvm`
Linux 6.17.5-200.64K_PS.fc42.aarch64 #1 SMP PREEMPT_DYNAMIC Wed Jan 21 08:54:52 EST 2026 aarch64

2. `w`
18:20:32 up 10:33, 2 users, load average: 103.85, 38.22, 63.21
USER TTY LOGIN@ IDLE JCPU PCPU WHAT
amptest 07:47 10:33m 0.00s 0.02s sshd-session: amptest [priv]
amptest 07:47 10:33m 0.00s 0.17s /usr/lib/systemd/systemd --user

3. Username
From environment variable \$USER: root
From the command 'logname': amptest

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) 784991
max locked memory (kbytes, -l) 8192
max memory size (kbytes, -m) unlimited
open files (-n) 524288
pipe size (512 bytes, -p) 8
POSIX message queues (bytes, -q) 819200
real-time priority (-r) 0
stack size (kbytes, -s) unlimited
cpu time (seconds, -t) unlimited
max user processes (-u) 784991
virtual memory (kbytes, -v) unlimited
file locks (-x) unlimited

5. `sysinfo process ancestry`
/usr/lib/systemd/systemd --switched-root --system --deserialize=57
sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups
sshd-session: amptest [priv]
sshd-session: amptest@notty
java -jar remoting.jar -workDir /home/amptest -jar-cache /home/amptest/remoting/jarCache
/bin/bash /tmp/jenkins10316276322400487163.sh
sudo -S -E UPDATE_UTIL=false /home/amptest/util/jenkins/speccpu_pkg_verify.sh
GreenSIR2026/without_report/spec2026_fprate_gcc15_ofast_static_ampereonem_power_110.tgz

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Platform Notes (Continued)

```

/bin/bash /home/amptest/util/jenkins/speccpu_pkg_verify.sh
GreenSIR2026/without_report/spec2026_fprate_gcc15_ofast_static_ampereonem_power_110.tgz
/bin/bash /home/amptest/workspace/sir2026_pkg_verify/ampere_spec2026/run_spec2026.sh --iterations 3
--nobuild --action run --copies 192 --reportable --tune=base,peak fprate
runcpu --config=ampere_aarch64 --define numasize=48 --define
gcc_dir=/home/amptest/ampere_spec2026/spec2026/gcc/install --define
llvm_dir=/home/amptest/ampere_spec2026/spec2026/llvm/install --define
jemalloc_dir=/home/amptest/ampere_spec2026/spec2026/jemalloc/install --define glibc_dir=/ --iterations 3
--nobuild --action run --copies 192 --reportable --tune=base,peak fprate
runcpu --configfile ampere_aarch64 --define numasize=48 --define
gcc_dir=/home/amptest/ampere_spec2026/spec2026/gcc/install --define
llvm_dir=/home/amptest/ampere_spec2026/spec2026/llvm/install --define
jemalloc_dir=/home/amptest/ampere_spec2026/spec2026/jemalloc/install --define glibc_dir=/ --iterations 3
--nobuild --action run --copies 192 --reportable --tune base,peak --runmode rate --tune base:peak --size
refrate fprate --nopreenv --note-preenv --logfile $SPEC/tmp/CPU2026.003/templogs/preenv.fprate.003.0.log
--lognum 003.0 --from_runcpu 2
specperl $SPEC/bin/sysinfo -f
$SPEC = /home/amptest/workspace/sir2026_pkg_verify/ampere_spec2026/spec2026

```

6. /proc/cpuinfo

```

CPU implementer : 0xc0
CPU architecture: 8
CPU variant : 0x0
CPU part : 0xac4
CPU revision : 0

```

```

Features : fp asimd evtstrm aes pmull sha1 sha2 crc32 atomics fphp asimdhp cpuid asimdrdm jscvt
fcma lrcpc dcpop sha3 sm3 sm4 asimddp sha512 asimdfhm dit uscat ilrcpc flagm ssbs sb
paca pacg dcpodp flagm2 frint i8mm bf16 rng bti ecv

```

7. lscpu

From lscpu from util-linux 2.41.3:

```

Architecture: aarch64
CPU op-mode(s): 64-bit
Byte Order: Little Endian
CPU(s): 192
On-line CPU(s) list: 0-191
Vendor ID: Ampere
BIOS Vendor ID: Ampere (R)
Model name: Ampere-1a
BIOS Model name: AmpereOne (R) A192-32M CPU @ 3.2GHz
BIOS CPU family: 257
Model: 0

```

(Continued on next page)



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Platform Notes (Continued)

```

Thread(s) per core: 1
Core(s) per socket: 192
Socket(s): 1
Stepping: 0x0
Frequency boost: disabled
CPU(s) scaling MHz: 100%
CPU max MHz: 3200.0000
CPU min MHz: 1000.0000
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
        asimdfhm dit uscat ilrcpc flagm ssbs sb paca pacg dcpodp flagm2
        frint i8mm bf16 rng bti ecv
L1d cache: 12 MiB (192 instances)
L1i cache: 3 MiB (192 instances)
L2 cache: 384 MiB (192 instances)
NUMA node(s): 4
NUMA node0 CPU(s): 0-47
NUMA node1 CPU(s): 48-95
NUMA node2 CPU(s): 96-143
NUMA node3 CPU(s): 144-191
Vulnerability Gather data sampling: Not affected
Vulnerability Ghostwrite: Not affected
Vulnerability Indirect target selection: 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 Old microcode: 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: Not affected
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
L1d 64K 12M 4 Data 1 256 64
L1i 16K 3M 4 Instruction 1 64 64

```

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Platform Notes (Continued)

L2 2M 384M 8 Unified 2 4096 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: 0-47

node 0 size: 195947 MB

node 0 free: 147239 MB

node 1 cpus: 48-95

node 1 size: 196403 MB

node 1 free: 145340 MB

node 2 cpus: 96-143

node 2 size: 196403 MB

node 2 free: 147555 MB

node 3 cpus: 144-191

node 3 size: 196211 MB

node 3 free: 148464 MB

node distances:

node	0	1	2	3
0:	10	11	11	12
1:	11	10	12	11
2:	11	12	10	11
3:	12	11	11	10

9. /proc/meminfo

MemTotal: 803806272 kB

'who -r' did not return a run level

10. Systemd service manager version: systemd 258 (258-1.fc43)

Default Target Status

multi-user running

11. Services, from systemctl list-unit-files

STATE UNIT FILES

STATE	UNIT FILES
enabled	ModemManager NetworkManager NetworkManager-dispatcher abrt-journal-core abrt-oops abrt-vmcore abrt-xorg abrttd atd audit-rules auditd authselect-apply-changes bluetooth crond dbus-broker fips-crypto-policy-overlay firewalld getty@ irqbalance iscsi-onboot iscsi-starter lm_sensors lvm2-monitor mdmonitor multipathd rpmdb-rebuild rsyslog rtkit-daemon selinux-autorelabel-mark smartd sshd sssd systemd-boot-clear-sysfail systemd-confext systemd-resolved systemd-sysextd systemd-tpm2-clear tuned udisks2 upower

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SPEC CPU®2026 Floating Point Rate Result

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R2A3-T40-AAV1
(3.20 GHz AmpereOneM A192-32M)

SPECrate®2026_fp_base = 310
SPECrate®2026_fp_energy_base = 43.9
SPECrate®2026_fp_peak = 314
SPECrate®2026_fp_energy_peak = 44.7

CPU2026 License: 6412
Test Sponsor: Ampere Computing, Inc.
Tested by: Ampere Computing, Inc.

Test Date: Feb-2026
Hardware Availability: Nov-2025
Software Availability: Oct-2025

Platform Notes (Continued)

```

enabled-runtime systemd-remount-fs
disabled NetworkManager-wait-online abrt-pstoreoops arp-ethers blk-availability
canberra-system-bootup canberra-system-shutdown canberra-system-shutdown-reboot
chrony-wait chronyd chronyd-restricted console-getty containerd cpupower debug-shell
dnf-system-upgrade dnf5-offline-transaction dnsmasq docker fancontrol fsidd gssproxy
iscsi-init iscsid iscsiuiio kvm_stat lastlog2-import low-memory-monitor lvm-devices-import
man-db-restart-cache-update netavark-dhcp-proxy netavark-firewalld-reload
netavark-nftables-reload nfs-blkmap nfs-server nftables nis-domainname
nvmeefc-boot-connections nvme-autoconnect openhpid podman podman-auto-update
podman-clean-transient podman-kube@ podman-restart psacct rmtfs rpcbind
selinux-check-proper-disable ssh-host-keys-migration sshd-keygen@ svnserve
systemd-boot-check-no-failures systemd-boot-update systemd-homed systemd-homed-activate
systemd-homed-firstboot systemd-network-generator systemd-oom 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-pstore systemd-time-wait-sync systemd-timesyncd
systemd-udev-load-credentials systemd-userdb-load-credentials wpa_supplicant zvid
indirect iscsi pcsd serial-getty@ sshd@ sssd-autofs sssd-kcm sssd-nss sssd-pac sssd-pam sssd-ssh
sssd-sudo systemd-sysupdate systemd-sysupdate-reboot systemd-userdbd

```

```

-----
12. Linux kernel boot-time arguments, from /proc/cmdline
BOOT_IMAGE=(hd5,gpt2)/vmlinuz-6.17.5-200.64K_PS.fc42.aarch64
root=/dev/mapper/fedora-root
ro
rd.lvm.lv=fedora/root
nokaslr
kaslr.disabled=1
nohz=on
nohz_full=0-191

```

```

-----
13. cpupower frequency-info
analyzing CPU 60:
current policy: frequency should be within 1000 MHz and 3.20 GHz.
The governor "performance" may decide which speed to use
within this range.

```

```

-----
14. tuned-adm active
No current active profile.

```

```

-----
15. sysctl
kernel.numa_balancing 0

```

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Platform Notes (Continued)

```

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                 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

```

```

-----
16. /sys/kernel/mm/transparent_hugepage
defrag          always defer defer+madvise madvise [never]
enabled        always madvise [never]
hpage_pmd_size 536870912
shmem_enabled  always within_size advise [never] deny force

```

```

-----
17. /sys/kernel/mm/transparent_hugepage/khugepaged
alloc_sleep_millisecs  60000
defrag                  1
max_ptes_none          8191
max_ptes_shared        4096
max_ptes_swap          1024
pages_to_scan          65536
scan_sleep_millisecs   10000

```

```

-----
18. OS release
From /etc/*-release /etc/*-version
os-release      Fedora Linux 43 (Server Edition)
fedora-release  Fedora release 43 (Forty Three)
redhat-release  Fedora release 43 (Forty Three)
system-release  Fedora release 43 (Forty Three)

```

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Platform Notes (Continued)

19. Disk information

SPEC is set to: /home/amptest/workspace/sir2026_pkg_verify/ampere_spec2026/spec2026
Filesystem Type Size Used Avail Use% Mounted on
/dev/mapper/fedora-root xfs 891G 245G 646G 28% /

20. /sys/devices/virtual/dmi/id

Vendor: GIGACOMPUTING
Product: R2A3-T40-AAV1
Product Family: R2A3-T40-AAV1
Serial: 00000000000000000000000000000001

21. dmidecode

Additional information from dmidecode 3.6 follows. WARNING: Use caution when you interpret this section. The 'dmidecode' program reads system data which is "intended to allow hardware to be accurately determined", but the intent may not be met, as there are frequent changes to hardware, firmware, and the "DMTF SMBIOS" standard.

Memory:
12x Micron Technology MTC40F2046S1RC56BD2 MLCC 64 GB 2 rank 5600

22. BIOS

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

BIOS Vendor: Ampere Computing LLC
BIOS Version: 5.4.5.1
BIOS Date: 10/22/2025
BIOS Revision: 5.37

Compiler Version Notes

C | 782.lbm_r(base, peak)

gcc (GCC) 15.2.0

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C++ | 731.astcenc_r(base, peak) 736.ocio_r(base, peak)
| 748.flightdm_r(base, peak) 766.femflow_r(base, peak)

(Continued on next page)



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Compiler Version Notes (Continued)

| 767.nest_r(base, peak) 772.marian_r(base, peak)

g++ (GCC) 15.2.0
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warranty; not even for MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.

=====
C++, C | 709.cactus_r(base pass 0, peak pass 0) 737.gmsh_r(base pass 0, peak
pass 1, peak pass 2)

g++ (GCC) 15.2.0
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=====
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pass 1, peak pass 2)

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Test Date: Feb-2026
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Software Availability: Oct-2025

Compiler Version Notes (Continued)

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Fortran | 722.palm_r(base, peak) 749.fotonik3d_r(base, peak) 765.roms_r(base,
peak)

GNU Fortran (GCC) 15.2.0
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warranty; not even for MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.

Base Compiler Invocation

C benchmarks:
gcc

C++ benchmarks:
g++

Fortran benchmarks:
gfortran

Benchmarks using both C and C++:
g++ gcc

Base Portability Flags

736.ocio_r: -fno-finite-math-only
737.gmsh_r: -fno-fast-math
767.nest_r: -fno-finite-math-only

Base Optimization Flags

C benchmarks:
-mabi=lp64 -std=c18 -Wl,-allow-multiple-definition -static
-fwhole-program
-L/home/ampctest/ampere_spec2026/spec2026/gcc/install/lib64

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Base Optimization Flags (Continued)

C benchmarks (continued):

```
-L/home/ampptest/ampere_spec2026/spec2026/gcc/install/lib
-L/home/ampptest/ampere_spec2026/spec2026/jemalloc/install/lib -g -Ofast
-mcpu=amperela -flto=32 -funroll-loops --param early-inlining-insns=96
--param max-inline-insns-auto=64 --param inline-unit-growth=96
-u malloc -ljemalloc
```

C++ benchmarks:

```
731.astcenc_r: -mabi=lp64 -std=c++17 -Wl,-allow-multiple-definition
-static -fwhole-program
-L/home/ampptest/ampere_spec2026/spec2026/gcc/install/lib64
-L/home/ampptest/ampere_spec2026/spec2026/gcc/install/lib
-L/home/ampptest/ampere_spec2026/spec2026/jemalloc/install/lib
-g -Ofast -mcpu=amperela -flto=32 -funroll-loops
--param early-inlining-insns=256
--param max-inline-insns-auto=128
--param inline-unit-growth=256 -ffinite-loops -u malloc
-ljemalloc_ext
```

736.ocio_r: Same as 731.astcenc_r

748.flightdm_r: Same as 731.astcenc_r

```
766.femflow_r: -mabi=lp64 -std=c++17 -Wl,-allow-multiple-definition
-static -fwhole-program
-L/home/ampptest/ampere_spec2026/spec2026/gcc/install/lib64
-L/home/ampptest/ampere_spec2026/spec2026/gcc/install/lib
-L/home/ampptest/ampere_spec2026/spec2026/jemalloc/install/lib
-g -Ofast -mcpu=amperela -flto=32 -funroll-loops
--param early-inlining-insns=256
--param max-inline-insns-auto=128
--param inline-unit-growth=256 -ffinite-loops -pthread
-u malloc -ljemalloc_ext
```

767.nest_r: Same as 731.astcenc_r

772.marian_r: Same as 766.femflow_r

Fortran benchmarks:

```
-mabi=lp64 -std=f2008 -Wl,-allow-multiple-definition -static
-fwhole-program
-L/home/ampptest/ampere_spec2026/spec2026/gcc/install/lib64
-L/home/ampptest/ampere_spec2026/spec2026/gcc/install/lib
```

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CPU2026 License: 6412
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Tested by: Ampere Computing, Inc.

Test Date: Feb-2026
Hardware Availability: Nov-2025
Software Availability: Oct-2025

Base Optimization Flags (Continued)

Fortran benchmarks (continued):

```
-L/home/ampctest/ampere_spec2026/spec2026/jemalloc/install/lib -g -Ofast  
-mcpu=ampere1a -flto=32 -funroll-loops -fallow-argument-mismatch  
-u malloc -ljemalloc
```

Benchmarks using both C and C++:

```
-mabi=lp64 -std=c++17 -std=c18 -Wl,-allow-multiple-definition -static  
-fwhole-program  
-L/home/ampctest/ampere_spec2026/spec2026/gcc/install/lib64  
-L/home/ampctest/ampere_spec2026/spec2026/gcc/install/lib  
-L/home/ampctest/ampere_spec2026/spec2026/jemalloc/install/lib -g -Ofast  
-mcpu=ampere1a -flto=32 -funroll-loops --param early-inlining-insns=96  
--param max-inline-insns-auto=64 --param inline-unit-growth=96  
--param early-inlining-insns=256 --param max-inline-insns-auto=128  
--param inline-unit-growth=256 -ffinite-loops -u malloc -ljemalloc_ext
```

Base Other Flags

C benchmarks:

```
-w -Wl,-Map,mapfile
```

C++ benchmarks:

```
-Wl,-Map,mapfile
```

Fortran benchmarks:

```
-Wl,-Map,mapfile
```

Benchmarks using both C and C++:

```
-w -Wl,-Map,mapfile
```

Peak Compiler Invocation

C benchmarks:

```
gcc
```

C++ benchmarks:

```
g++
```

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Peak Compiler Invocation (Continued)

Fortran benchmarks:
gfortran

Benchmarks using both C and C++:
g++ gcc

Peak Portability Flags

736.ocio_r: -fno-finite-math-only
737.gmsh_r: -fno-fast-math
767.nest_r: -fno-finite-math-only

Peak Optimization Flags

C benchmarks:
-mabi=lp64 -std=c18 -Wl,-allow-multiple-definition -static
-fwhole-program
-L/home/ampctest/ampere_spec2026/spec2026/gcc/install/lib64
-L/home/ampctest/ampere_spec2026/spec2026/gcc/install/lib
-L/home/ampctest/ampere_spec2026/spec2026/jemalloc/install/lib
-fprofile-generate -fprofile-use -fprofile-partial-training -g -Ofast
-mcpu=ampere1a -flto=32 -funroll-loops --param early-inlining-insns=96
--param max-inline-insns-auto=64 --param inline-unit-growth=96
-u malloc -ljemalloc

C++ benchmarks:

731.ascenc_r: basepeak = yes

736.ocio_r: basepeak = yes

748.flightdm_r: -mabi=lp64 -std=c++17 -Wl,-allow-multiple-definition
-static -fwhole-program
-L/home/ampctest/ampere_spec2026/spec2026/gcc/install/lib64
-L/home/ampctest/ampere_spec2026/spec2026/gcc/install/lib
-L/home/ampctest/ampere_spec2026/spec2026/jemalloc/install/lib
-fprofile-generate -fprofile-use
-fprofile-partial-training -g -Ofast -mcpu=ampere1a
-flto=32 -funroll-loops --param early-inlining-insns=256

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Peak Optimization Flags (Continued)

748.flightdm_r (continued):

```
--param max-inline-insns-auto=128
--param inline-unit-growth=256 -ffinite-loops -u malloc
-ljemalloc_ext
```

```
766.femflow_r: -mabi=lp64 -std=c++17 -Wl,-allow-multiple-definition
-static -fwhole-program
-L/home/ampptest/ampere_spec2026/spec2026/gcc/install/lib64
-L/home/ampptest/ampere_spec2026/spec2026/gcc/install/lib
-L/home/ampptest/ampere_spec2026/spec2026/jemalloc/install/lib
-fprofile-generate -fprofile-use
-fprofile-partial-training -g -Ofast -mcpu=amperela
-flto=32 -funroll-loops --param early-inlining-insns=256
--param max-inline-insns-auto=128
--param inline-unit-growth=256 -ffinite-loops -pthread
-u malloc -ljemalloc_ext
```

767.nest_r: Same as 748.flightdm_r

772.marian_r: Same as 766.femflow_r

Fortran benchmarks:

```
-mabi=lp64 -std=f2008 -Wl,-allow-multiple-definition -static
-fwhole-program
-L/home/ampptest/ampere_spec2026/spec2026/gcc/install/lib64
-L/home/ampptest/ampere_spec2026/spec2026/gcc/install/lib
-L/home/ampptest/ampere_spec2026/spec2026/jemalloc/install/lib
-fprofile-generate -fprofile-use -fprofile-partial-training -g -Ofast
-mcpu=amperela -flto=32 -funroll-loops -fallow-argument-mismatch
-u malloc -ljemalloc
```

Benchmarks using both C and C++:

709.cactus_r: basepeak = yes

```
737.gmsh_r: -mabi=lp64 -std=c++17 -std=c18
-Wl,-allow-multiple-definition -static -fwhole-program
-L/home/ampptest/ampere_spec2026/spec2026/gcc/install/lib64
-L/home/ampptest/ampere_spec2026/spec2026/gcc/install/lib
-L/home/ampptest/ampere_spec2026/spec2026/jemalloc/install/lib
-fprofile-generate -fprofile-use
-fprofile-partial-training -g -Ofast -mcpu=amperela
-flto=32 -funroll-loops --param early-inlining-insns=96
--param max-inline-insns-auto=64
```

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Peak Optimization Flags (Continued)

737.gmsh_r (continued):
--param inline-unit-growth=96
--param early-inlining-insns=256
--param max-inline-insns-auto=128
--param inline-unit-growth=256 -ffinite-loops -u malloc
-ljemalloc_ext

Peak Other Flags

C benchmarks:
-w -Wl, -Map, mapfile

C++ benchmarks:
-Wl, -Map, mapfile

Fortran benchmarks:
-Wl, -Map, mapfile

Benchmarks using both C and C++:
-w -Wl, -Map, mapfile

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

<http://www.spec.org/cpu2026/results/flags/gcc-rev-A2.html>
<http://www.spec.org/cpu2026/results/flags/GIGA-BYTE-platform-settings-AmpereOneM-rev.1.html>

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

<http://www.spec.org/cpu2026/results/flags/gcc-rev-A2.xml>
<http://www.spec.org/cpu2026/results/flags/GIGA-BYTE-platform-settings-AmpereOneM-rev.1.xml>

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