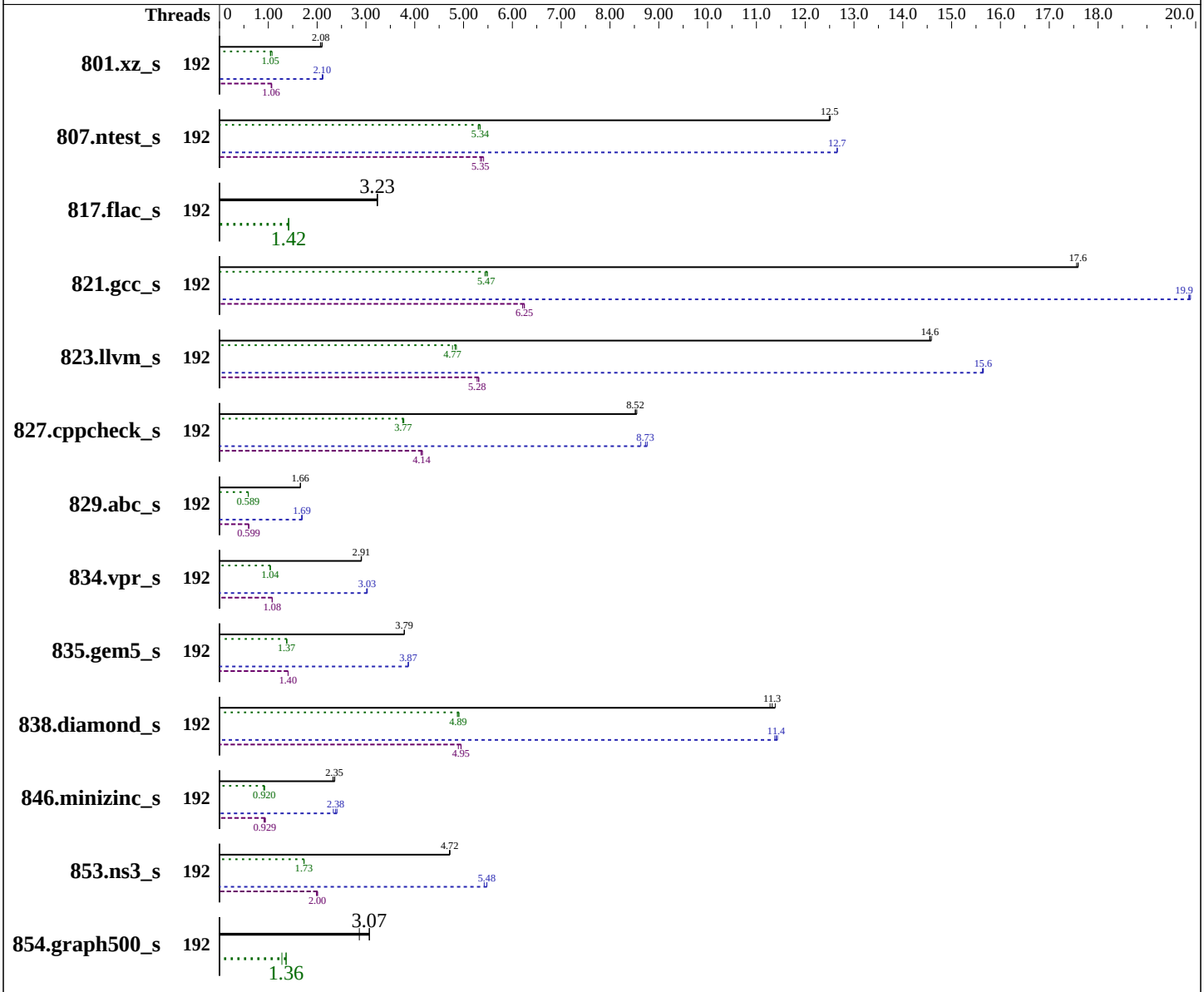
SPEC CPU®2026 Integer Speed Result

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

SPECspeed®2026_int_base =	5.02
SPECspeed®2026_int_energy_base =	1.97
SPECspeed®2026_int_peak =	5.21
SPECspeed®2026_int_energy_peak =	2.07

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

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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

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Hardware (Continued)

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
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)

File System:	xfs
System State:	Run level 3 (multi-user)
Base Pointers:	64-bit
Peak Pointers:	64-bit
Other:	Jemalloc memory allocator library v5.3.0
Power Management:	OS CPU governor set to "performance"

Power

Max. Power (W):	775.3
Idle Power (W):	203.65
Min. Temperature (C):	20.50
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 #s:	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 #s:	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

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SPECspeed®2026_int_energy_base = 1.97
SPECspeed®2026_int_peak = 5.21
SPECspeed®2026_int_energy_peak = 2.07

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

Base Results Table

Benchmark	Threads	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
801.xz_s	192	281	2.10	76.9	1.08	274	566	**285**	**2.08**	**79.3**	**1.05**	**278**	**573**	286	2.07	79.3	1.04	278	572
807.ntest_s	192	**91.2**	**12.5**	**43.4**	**5.34**	**476**	**540**	91.3	12.5	43.7	5.31	479	539	91.1	12.5	43.8	5.30	480	539
817.flac_s	192	536	3.24	131	1.42	245	276	538	3.23	131	1.42	244	274	**537**	**3.23**	**131**	**1.42**	**244**	**275**
821.gcc_s	192	118	17.6	77.5	5.49	658	708	118	17.6	78.2	5.44	663	708	**118**	**17.6**	**77.8**	**5.47**	**661**	**709**
823.llvm_s	192	96.7	14.6	60.3	4.85	624	664	97.0	14.6	60.6	4.83	626	658	**96.9**	**14.6**	**61.3**	**4.77**	**633**	**676**
827.cppcheck_s	192	131	8.55	64.3	3.78	492	767	**131**	**8.52**	**64.5**	**3.77**	**491**	**775**	131	8.52	64.7	3.75	493	773
829.abc_s	192	502	1.65	119	0.587	236	249	500	1.66	118	0.590	236	248	**501**	**1.66**	**118**	**0.589**	**236**	**247**
834.vpr_s	192	**328**	**2.91**	**77.1**	**1.04**	**235**	**241**	328	2.91	77.0	1.04	235	240	329	2.90	77.2	1.04	235	240
835.gem5_s	192	301	3.78	70.2	1.38	233	236	301	3.79	70.2	1.38	233	236	**301**	**3.79**	**70.3**	**1.37**	**234**	**237**
838.diamond_s	192	87.9	11.4	40.8	4.91	464	586	88.7	11.3	41.1	4.87	463	584	**88.4**	**11.3**	**40.9**	**4.89**	**463**	**595**
846.minizinc_s	192	284	2.36	68.0	0.923	240	245	288	2.32	69.2	0.906	240	246	**285**	**2.35**	**68.2**	**0.920**	**240**	**245**
853.ns3_s	192	244	4.72	57.2	1.73	234	239	245	4.71	57.3	1.73	234	240	**244**	**4.72**	**57.3**	**1.73**	**234**	**239**
854.graph500_s	192	**199**	**3.07**	**95.2**	**1.36**	**478**	**606**	199	3.07	95.2	1.36	479	612	213	2.86	102	1.28	476	609

SPECspeed®2026_int_base = 5.02

SPECspeed®2026_int_energy_base = 1.97

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

Peak Results Table

Benchmark	Threads	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
801.xz_s	192	281	2.10	78.1	1.06	278	565	**281**	**2.10**	**78.1**	**1.06**	**278**	**565**	279	2.12	77.4	1.07	278	567
807.ntest_s	192	90.1	12.6	43.2	5.37	479	541	**90.1**	**12.7**	**43.4**	**5.35**	**482**	**542**	90.1	12.7	42.9	5.41	476	545
817.flac_s	192	536	3.24	131	1.42	245	276	538	3.23	131	1.42	244	274	**537**	**3.23**	**131**	**1.42**	**244**	**275**
821.gcc_s	192	104	19.9	68.5	6.21	658	701	104	19.9	68.1	6.24	654	701	**104**	**19.9**	**68.1**	**6.25**	**653**	**703**
823.llvm_s	192	90.3	15.6	55.1	5.31	611	644	90.2	15.6	55.1	5.31	611	650	**90.2**	**15.6**	**55.5**	**5.28**	**615**	**643**
827.cppcheck_s	192	128	8.76	58.4	4.16	458	716	**128**	**8.73**	**58.7**	**4.14**	**458**	**725**	130	8.63	58.9	4.13	454	721
829.abc_s	192	490	1.70	116	0.602	236	246	**492**	**1.69**	**116**	**0.599**	**237**	**247**	494	1.68	117	0.597	236	249
834.vpr_s	192	315	3.03	74.1	1.08	235	241	**315**	**3.03**	**74.2**	**1.08**	**235**	**241**	317	3.01	74.4	1.08	235	242
835.gem5_s	192	**294**	**3.87**	**68.8**	**1.40**	**234**	**237**	295	3.86	68.9	1.40	234	237	294	3.87	68.8	1.41	234	237
838.diamond_s	192	**87.8**	**11.4**	**40.5**	**4.95**	**461**	**567**	87.6	11.4	40.4	4.95	462	561	88.0	11.4	40.9	4.89	465	559
846.minizinc_s	192	287	2.33	68.8	0.912	239	245	278	2.41	66.7	0.940	240	244	**282**	**2.38**	**67.5**	**0.929**	**240**	**245**
853.ns3_s	192	210	5.48	49.4	2.01	235	240	**211**	**5.48**	**49.5**	**2.00**	**235**	**241**	213	5.42	49.9	1.99	235	239
854.graph500_s	192	**199**	**3.07**	**95.2**	**1.36**	**478**	**606**	199	3.07	95.2	1.36	479	612	213	2.86	102	1.28	476	609

SPECspeed®2026_int_peak = 5.21

SPECspeed®2026_int_energy_peak = 2.07

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
```

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
```

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Operating System Notes (Continued)

```
     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/jem
     alloc/install/lib:/home/amptest/workspace/sir2026_pkg_verify/ampere_spec
     2026/spec2026/gcc/install/lib64:/home/amptest/ampere_spec2026/spec2026/j
     emalloc/install/lib:/home/amptest/ampere_spec2026/spec2026/gcc/install/l
     ib64"
MALLOC_CONF = "thp:never,dirty_decay_ms:-1,muzzy_decay_ms:-1,retain:true"
OMP_STACKSIZE = "120M"
```

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.
 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)
```

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General Notes (Continued)

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 Thu Feb  5 14:24:59 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
------------------------------------------------------------

------------------------------------------------------------
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
```

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Platform Notes (Continued)

```
------------------------------------------------------------
2. w
   14:24:59 up 33 min,  2 users,  load average: 103.15, 34.21, 12.08
  USER     TTY        LOGIN@   IDLE   JCPU   PCPU WHAT
  amptest            13:52   32:55   0.00s  0.02s sshd-session: amptest [priv]
  amptest            13:52   32:55   0.00s  0.21s /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) 784608
  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) 784608
  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/jenkins8000437629987399314.sh
 sudo -S -E UPDATE_UTIL=false /home/amptest/util/jenkins/speccpu_pkg_verify.sh
   GreenSIR2026/without_report/spec2026_intspeed_gcc15_Ofast_static_ampereonem_power_111.tgz
 /bin/bash /home/amptest/util/jenkins/speccpu_pkg_verify.sh
   GreenSIR2026/without_report/spec2026_intspeed_gcc15_Ofast_static_ampereonem_power_111.tgz
 /bin/bash /home/amptest/workspace/sir2026_pkg_verify/ampere_spec2026/run_spec2026.sh --iterations 3
```

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Platform Notes (Continued)

```
    --nobuild --action run --threads 192 --reportable --tune=base,peak intspeed
  runcpu --config=ampere_aarch64 --define numasize=192 --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 --threads 192 --reportable --tune=base,peak intspeed
  runcpu --configfile ampere_aarch64 --define numasize=192 --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 --threads 192 --reportable --tune base,peak --runmode speed --tune base:peak --size
    refspeed intspeed --nopreenv --note-preenv --logfile
   $SPEC/tmp/CPU2026.003/templogs/preenv.intspeed.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
  Thread(s) per core:                      1
  Core(s) per socket:                      192
  Socket(s):                               1
```

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Platform Notes (Continued)

```
  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):                         1
  NUMA node0 CPU(s):                    0-191
  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
     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: 1 nodes (0)
```

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Platform Notes (Continued)

```
   node 0 cpus: 0-191
   node 0 size: 784583 MB
   node 0 free: 776092 MB
   node distances:
   node     0
      0:   10

------------------------------------------------------------
9. /proc/meminfo
   MemTotal:       803413888 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
  enabled          ModemManager NetworkManager NetworkManager-dispatcher abrt-journal-core abrt-oops
                   abrt-vmcore abrt-xorg abrtd 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-sysext systemd-tpm2-clear tuned udisks2 upower
  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 iscsiuio 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
                   nvmefc-boot-connections nvmf-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-oomd 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 zvbid
  indirect         iscsi pcscd serial-getty@ sshd@ sssd-autofs sssd-kcm sssd-nss sssd-pac sssd-pam sssd-ssh
```

(Continued on next page)

Platform Notes (Continued)

```
                 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

------------------------------------------------------------
13. cpupower frequency-info
  analyzing CPU 23:
    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
  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

------------------------------------------------------------
```

(Continued on next page)

Platform Notes (Continued)

```
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)

------------------------------------------------------------
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  261G  631G  30% /

------------------------------------------------------------
20. /sys/devices/virtual/dmi/id
    Vendor:         GIGACOMPUTING
    Product:        R2A3-T40-AAV1
    Product Family: R2A3-T40-AAV1
    Serial:         00000000000000000000000000001

------------------------------------------------------------
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
```

(Continued on next page)

Platform Notes (Continued)

```
 ------------------------------------------------------------
 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      | 854.graph500_s(base, peak)
------------------------------------------------------------------------------
gcc (GCC) 15.2.0
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This is free software; see the source for copying conditions.  There is NO
warranty; not even for MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.
------------------------------------------------------------------------------

==============================================================================
C++    | 807.ntest_s(base, peak) 827.cppcheck_s(base, peak) 853.ns3_s(base,
       | peak)
------------------------------------------------------------------------------
g++ (GCC) 15.2.0
Copyright (C) 2025 Free Software Foundation, Inc.
This is free software; see the source for copying conditions.  There is NO
warranty; not even for MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.
------------------------------------------------------------------------------

==============================================================================
C++, C | 801.xz_s(base pass 0, peak pass 1, peak pass 2) 817.flac_s(base pass
       | 0, peak pass 0) 821.gcc_s(base pass 0, peak pass 1, peak pass 2)
       | 823.llvm_s(base pass 0, peak pass 1, peak pass 2) 829.abc_s(base
       | pass 0, peak pass 1, peak pass 2) 834.vpr_s(base pass 0, peak pass
       | 1, peak pass 2) 835.gem5_s(base pass 0, peak pass 1, peak pass 2)
       | 838.diamond_s(base pass 0, peak pass 1, peak pass 2)
       | 846.minizinc_s(base pass 0, peak pass 1, peak pass 2)
------------------------------------------------------------------------------
g++ (GCC) 15.2.0
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warranty; not even for MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.
```

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Compiler Version Notes (Continued)

```
------------------------------------------------------------------------------

==============================================================================
C++, C | 801.xz_s(base pass 0, peak pass 1, peak pass 2) 817.flac_s(base pass
       | 0, peak pass 0) 821.gcc_s(base pass 0, peak pass 1, peak pass 2)
       | 823.llvm_s(base pass 0, peak pass 1, peak pass 2) 829.abc_s(base
       | pass 0, peak pass 1, peak pass 2) 834.vpr_s(base pass 0, peak pass
       | 1, peak pass 2) 835.gem5_s(base pass 0, peak pass 1, peak pass 2)
       | 838.diamond_s(base pass 0, peak pass 1, peak pass 2)
       | 846.minizinc_s(base pass 0, peak pass 1, peak pass 2)
------------------------------------------------------------------------------
gcc (GCC) 15.2.0
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warranty; not even for MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.
------------------------------------------------------------------------------

==============================================================================
C++, C | 801.xz_s(base pass 0, peak pass 1, peak pass 2) 817.flac_s(base pass
       | 0, peak pass 0) 821.gcc_s(base pass 0, peak pass 1, peak pass 2)
       | 823.llvm_s(base pass 0, peak pass 1, peak pass 2) 829.abc_s(base
       | pass 0, peak pass 1, peak pass 2) 834.vpr_s(base pass 0, peak pass
       | 1, peak pass 2) 835.gem5_s(base pass 0, peak pass 1, peak pass 2)
       | 838.diamond_s(base pass 0, peak pass 1, peak pass 2)
       | 846.minizinc_s(base pass 0, peak pass 1, peak pass 2)
------------------------------------------------------------------------------
g++ (GCC) 15.2.0
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warranty; not even for MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.
------------------------------------------------------------------------------

==============================================================================
C++, C | 801.xz_s(base pass 0, peak pass 1, peak pass 2) 817.flac_s(base pass
       | 0, peak pass 0) 821.gcc_s(base pass 0, peak pass 1, peak pass 2)
       | 823.llvm_s(base pass 0, peak pass 1, peak pass 2) 829.abc_s(base
       | pass 0, peak pass 1, peak pass 2) 834.vpr_s(base pass 0, peak pass
       | 1, peak pass 2) 835.gem5_s(base pass 0, peak pass 1, peak pass 2)
       | 838.diamond_s(base pass 0, peak pass 1, peak pass 2)
       | 846.minizinc_s(base pass 0, peak pass 1, peak pass 2)
------------------------------------------------------------------------------
gcc (GCC) 15.2.0
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warranty; not even for MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.
```

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Compiler Version Notes (Continued)

Base Compiler Invocation

C benchmarks:
gcc

C++ benchmarks:
g++

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

Base Portability Flags

834.vpr_s: -fno-finite-math-only
835.gem5_s: -fno-finite-math-only

Base Optimization Flags

C benchmarks:
-mabi=lp64 -std=c18 -Wl,-allow-multiple-definition -static
-fwhole-program
-L/home/amptest/ampere_spec2026/spec2026/gcc/install/lib64
-L/home/amptest/ampere_spec2026/spec2026/gcc/install/lib
-L/home/amptest/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 -fopenmp
-DSPEC_OPENMP -u malloc -ljemalloc

C++ benchmarks:

807.ntest_s: -mabi=lp64 -std=c++17 -Wl,-allow-multiple-definition
-static -fwhole-program
-L/home/amptest/ampere_spec2026/spec2026/gcc/install/lib64
-L/home/amptest/ampere_spec2026/spec2026/gcc/install/lib
-L/home/amptest/ampere_spec2026/spec2026/jemalloc/install/lib
-g -Ofast -mcpu=ampere1a -flto=32 -funroll-loops
--param early-inlining-insns=256

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Base Optimization Flags (Continued)

807.ntest_s (continued):
--param max-inline-insns-auto=128
--param inline-unit-growth=256 -ffinite-loops -fopenmp
-DSPEC_OPENMP -u malloc -ljemalloc_ext

827.cppcheck_s: -mabi=lp64 -std=c++17 -Wl,-allow-multiple-definition
-static -fwhole-program
-L/home/amptest/ampere_spec2026/spec2026/gcc/install/lib64
-L/home/amptest/ampere_spec2026/spec2026/gcc/install/lib
-L/home/amptest/ampere_spec2026/spec2026/jemalloc/install/lib
-g -Ofast -mcpu=ampere1a -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

853.ns3_s: -mabi=lp64 -std=c++17 -Wl,-allow-multiple-definition
-static -fwhole-program
-L/home/amptest/ampere_spec2026/spec2026/gcc/install/lib64
-L/home/amptest/ampere_spec2026/spec2026/gcc/install/lib
-L/home/amptest/ampere_spec2026/spec2026/jemalloc/install/lib
-g -Ofast -mcpu=ampere1a -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

Benchmarks using both C and C++:

801.xz_s: -mabi=lp64 -std=c++17 -std=c18
-Wl,-allow-multiple-definition -static -fwhole-program
-L/home/amptest/ampere_spec2026/spec2026/gcc/install/lib64
-L/home/amptest/ampere_spec2026/spec2026/gcc/install/lib
-L/home/amptest/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 -pthread
-u malloc -ljemalloc_ext

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Base Optimization Flags (Continued)

817.flac_s: Same as 801.xz_s

821.gcc_s: -mabi=lp64 -std=c++17 -std=c18
-Wl,-allow-multiple-definition -static -fwhole-program
-L/home/amptest/ampere_spec2026/spec2026/gcc/install/lib64
-L/home/amptest/ampere_spec2026/spec2026/gcc/install/lib
-L/home/amptest/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

823.llvm_s: Same as 801.xz_s

829.abc_s: Same as 821.gcc_s

834.vpr_s: Same as 821.gcc_s

835.gem5_s: Same as 801.xz_s

838.diamond_s: Same as 801.xz_s

846.minizinc_s: Same as 801.xz_s

Base Other Flags

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

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

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

Peak Compiler Invocation

C benchmarks:
gcc

C++ benchmarks:
g++

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

Peak Portability Flags

834.vpr_s: -fno-finite-math-only
835.gem5_s: -fno-finite-math-only

Peak Optimization Flags

C benchmarks:

854.graph500_s: basepeak = yes

C++ benchmarks:

807.ntest_s: -mabi=lp64 -std=c++17 -Wl,-allow-multiple-definition
-static -fwhole-program
-L/home/amptest/ampere_spec2026/spec2026/gcc/install/lib64
-L/home/amptest/ampere_spec2026/spec2026/gcc/install/lib
-L/home/amptest/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
--param max-inline-insns-auto=128
--param inline-unit-growth=256 -ffinite-loops -fopenmp
-DSPEC_OPENMP -u malloc -ljemalloc_ext

827.cppcheck_s: -mabi=lp64 -std=c++17 -Wl,-allow-multiple-definition
-static -fwhole-program
-L/home/amptest/ampere_spec2026/spec2026/gcc/install/lib64
-L/home/amptest/ampere_spec2026/spec2026/gcc/install/lib
-L/home/amptest/ampere_spec2026/spec2026/jemalloc/install/lib

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Peak Optimization Flags (Continued)

827.cppcheck_s (continued):
-fprofile-generate -fprofile-use -fprofile-partial-training
-g -Ofast -mcpu=ampere1a -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

853.ns3_s: -mabi=lp64 -std=c++17 -Wl,-allow-multiple-definition
-static -fwhole-program
-L/home/amptest/ampere_spec2026/spec2026/gcc/install/lib64
-L/home/amptest/ampere_spec2026/spec2026/gcc/install/lib
-L/home/amptest/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
--param max-inline-insns-auto=128
--param inline-unit-growth=256 -ffinite-loops -u malloc
-ljemalloc_ext

Benchmarks using both C and C++:

801.xz_s: -mabi=lp64 -std=c++17 -std=c18
-Wl,-allow-multiple-definition -static -fwhole-program
-L/home/amptest/ampere_spec2026/spec2026/gcc/install/lib64
-L/home/amptest/ampere_spec2026/spec2026/gcc/install/lib
-L/home/amptest/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
--param early-inlining-insns=256
--param max-inline-insns-auto=128
--param inline-unit-growth=256 -ffinite-loops -pthread
-u malloc -ljemalloc_ext

817.flac_s: basepeak = yes

821.gcc_s: -mabi=lp64 -std=c++17 -std=c18
-Wl,-allow-multiple-definition -static -fwhole-program
-L/home/amptest/ampere_spec2026/spec2026/gcc/install/lib64
-L/home/amptest/ampere_spec2026/spec2026/gcc/install/lib
-L/home/amptest/ampere_spec2026/spec2026/jemalloc/install/lib

(Continued on next page)

Peak Optimization Flags (Continued)

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

823.llvm_s: Same as 801.xz_s

829.abc_s: Same as 821.gcc_s

834.vpr_s: Same as 821.gcc_s

835.gem5_s: Same as 801.xz_s

838.diamond_s: Same as 801.xz_s

846.minizinc_s: Same as 801.xz_s

Peak Other Flags

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

C++ 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

For questions about this result, please contact the tester. For other inquiries, please contact info@spec.org.

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