



SPEC CPU®2026 Integer Speed Result

Copyright 2026 Standard Performance Evaluation Corporation

Lenovo Global Technology

(Test Sponsor: Ampere Computing, Inc.)

ThinkSystem HR330A (3.00 GHz Ampere eMAG 8180)

SPECSpeed®2026_int_base =	1.00
SPECSpeed®2026_int_energy_base =	1.00
SPECSpeed®2026_int_peak =	1.07
SPECSpeed®2026_int_energy_peak =	1.08

CPU2026 License: 6412

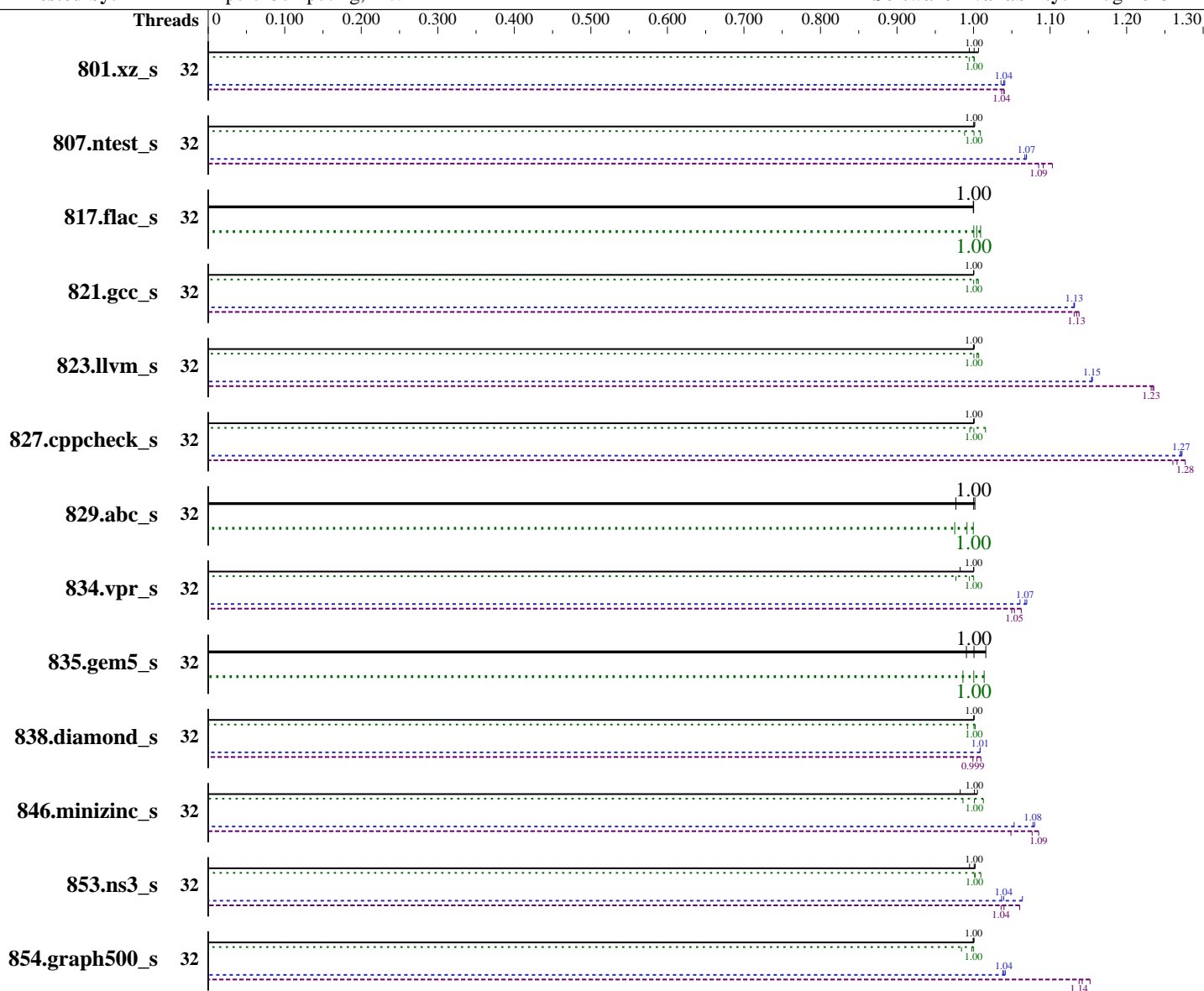
Test Sponsor: Ampere Computing, Inc.

Tested by: Ampere Computing, Inc.

Test Date: Feb-2026

Hardware Availability: Apr-2019

Software Availability: Aug-2025



Hardware

CPU Name: Ampere eMAG 8180
 Max MHz: 3300
 Nominal: 3000
 Enabled: 32 cores, 1 chip
 Orderable: 1 chips

(Continued on next page)

Software

OS: Ubuntu 24.04.1 LTS kernel 6.8.0 (64KB pages)
 Compiler: C/C++/Fortran: Version 15.2.0 of GCC
 Compiler Category: Community
 Firmware: Version 1.12 released Nov-2019
 File System: ext4

(Continued on next page)



SPEC CPU®2026 Integer Speed Result

Copyright 2026 Standard Performance Evaluation Corporation

Lenovo Global Technology

(Test Sponsor: Ampere Computing, Inc.)

ThinkSystem HR330A (3.00 GHz Ampere eMAG 8180)

SPECSpeed®2026_int_base = 1.00
 SPECSpeed®2026_int_energy_base = 1.00
 SPECSpeed®2026_int_peak = 1.07
 SPECSpeed®2026_int_energy_peak = 1.08

CPU2026 License: 6412

Test Sponsor: Ampere Computing, Inc.

Tested by: Ampere Computing, Inc.

Test Date: Feb-2026

Hardware Availability: Apr-2019

Software Availability: Aug-2025

Hardware (Continued)

Cache L1: 32 KB I + 32 KB D on chip per core
 L2: 4 MB I+D on chip per chip (256 KB shared / 2 cores)
 L3: 32 MB I+D on chip per chip
 Other: None
 Memory: 128 GB (8 x 16 GB 2Rx4 PC4-2666V-R)
 Storage: 1 x 480 GB SATA SSD
 Cooling: Air
 Other: None

Software (Continued)

System State: Run level 5 (multi-user)
 Base Pointers: 64-bit
 Peak Pointers: 64-bit
 Other: jemalloc v5.3+, commit hash 1972241
 Power Management: OS CPU governor set to "performance"

Power

Max. Power (W): 292.13
 Idle Power (W): 77.55
 Min. Temperature (C): 20.88
 Elevation (m): 60
 Line Standard: 120 V / 60 Hz / 1 phase / 2 wire
 Provisioning: Line powered

Power Settings

Management FW: Version 11.05.111 of Falcon BMC
 Memory Mode: Normal

Power-Relevant Hardware

Power Supply: 1 x 550 W (non-redundant)
 Details: Lenovo 03LD785 550 Watt High Efficiency Platinum AC Power Supply
 Backplane: N/A
 Other Storage: N/A
 Storage Model #s: 1 x Lenovo 01PE965 (480GB SATA SSD) connected to on-board HBA
 NICs Installed: 1 x Lenovo 01PE857 @ 10 GbE (2 ports ethernet)
 NICs Enabled (FW/OS): 2 / 1
 NICs Connected/Speed: 1 @ 1 Gbps
 Other HW Model #s: --

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
 Current Ranges Used: 5A
 Voltage Range Used: 150V

Temperature Meter

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



SPEC CPU®2026 Integer Speed Result

Copyright 2026 Standard Performance Evaluation Corporation

Lenovo Global Technology
(Test Sponsor: Ampere Computing, Inc.)
ThinkSystem HR330A
(3.00 GHz Ampere eMAG 8180)

SPECSpeed®2026_int_base = 1.00
SPECSpeed®2026_int_energy_base = 1.00
SPECSpeed®2026_int_peak = 1.07
SPECSpeed®2026_int_energy_peak = 1.08

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

Test Date: Feb-2026
Hardware Availability: Apr-2019
Software Availability: Aug-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	32	587	1.01	82.8	1.00	141	211	594	0.994	83.3	0.994	140	212	591	1.00	82.8	1.00	140	207
807.ntest_s	32	1139	1.00	232	1.00	203	264	1140	1.00	230	1.01	202	263	1138	1.00	235	0.988	206	264
817.flac_s	32	1738	1.00	185	1.00	107	191	1737	1.00	184	1.01	106	182	1737	1.00	186	1.00	107	181
821.gcc_s	32	2070	1.00	425	1.00	205	248	2070	1.00	423	1.00	205	229	2070	1.00	423	1.01	204	242
823.llvm_s	32	1411	1.00	291	1.01	206	236	1410	1.00	291	1.00	207	246	1410	1.00	293	1.00	207	235
827.cppcheck_s	32	1119	1.00	243	1.00	217	277	1118	1.00	239	1.02	214	231	1119	1.00	244	0.995	218	284
829.abc_s	32	851	0.977	71.5	0.975	84.0	93.2	831	1.00	69.7	1.00	83.9	92.3	830	1.00	70.3	0.991	84.8	94.3
834.vpr_s	32	971	0.982	82.0	0.977	84.5	92.3	954	1.00	80.1	1.00	84.0	87.6	954	1.00	80.6	0.994	84.5	87.6
835.gem5_s	32	1150	0.991	98.1	0.986	85.3	87.3	1138	1.00	96.7	1.00	84.9	86.9	1121	1.02	95.4	1.01	85.1	86.7
838.diamond_s	32	1001	1.00	202	0.992	202	265	1000	1.00	200	1.00	200	264	1000	1.00	200	1.00	200	266
846.minizinc_s	32	669	1.00	62.6	1.00	93.6	101	667	1.01	61.9	1.01	92.9	100	682	0.983	63.6	0.986	93.3	101
853.ns3_s	32	1152	1.00	99.0	1.00	86.0	98.5	1151	1.00	98.2	1.01	85.4	95.6	1159	0.995	98.9	1.00	85.4	95.9
854.graph500_s	32	611	0.999	130	0.998	213	284	611	1.00	130	1.00	213	287	611	1.00	132	0.984	216	292

SPECSpeed®2026_int_base = **1.00**

SPECSpeed®2026_int_energy_base = **1.00**

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	32	571	1.04	79.7	1.04	140	207	568	1.04	79.7	1.04	140	210	569	1.04	79.9	1.04	141	210
807.ntest_s	32	1066	1.07	210	1.10	197	245	1068	1.07	213	1.09	199	254	1066	1.07	214	1.09	200	238
817.flac_s	32	1738	1.00	185	1.00	107	191	1737	1.00	184	1.01	106	182	1737	1.00	186	1.00	107	181
821.gcc_s	32	1830	1.13	376	1.13	205	227	1829	1.13	375	1.13	205	242	1829	1.13	374	1.14	204	231
823.llvm_s	32	1221	1.16	237	1.23	194	215	1223	1.15	237	1.24	194	209	1222	1.15	238	1.23	194	211
827.cppcheck_s	32	879	1.27	192	1.27	218	271	880	1.27	190	1.28	216	253	881	1.27	193	1.26	219	285
829.abc_s	32	851	0.977	71.5	0.975	84.0	93.2	831	1.00	69.7	1.00	83.9	92.3	830	1.00	70.3	0.991	84.8	94.3
834.vpr_s	32	892	1.07	75.4	1.06	84.6	87.9	894	1.07	76.1	1.05	85.1	89.5	899	1.06	76.3	1.05	84.9	88.0
835.gem5_s	32	1150	0.991	98.1	0.986	85.3	87.3	1138	1.00	96.7	1.00	84.9	86.9	1121	1.02	95.4	1.01	85.1	86.7
838.diamond_s	32	992	1.01	200	0.999	202	262	992	1.01	198	1.01	200	264	992	1.01	199	1.00	201	265
846.minizinc_s	32	622	1.08	57.8	1.09	93.0	101	636	1.05	59.8	1.05	94.0	102	620	1.08	58.3	1.08	93.9	102
853.ns3_s	32	1084	1.06	93.5	1.06	86.3	97.6	1109	1.04	95.7	1.04	86.3	98.6	1112	1.04	95.4	1.04	85.7	98.1
854.graph500_s	32	588	1.04	114	1.14	194	283	587	1.04	113	1.15	192	253	589	1.04	114	1.14	193	268

SPECSpeed®2026_int_peak = **1.07**

SPECSpeed®2026_int_energy_peak = **1.08**

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

Environment Variables Notes

Environment variables set by runcpu before the start of the run:
LD_LIBRARY_PATH = "/usr/lib64:/usr/lib:/lib64:/home/mjm/jemalloc/lib"
OMP_STACKSIZE = "120M"

General Notes

jemalloc is a general purpose malloc(3) implementation that emphasizes fragmentation avoidance and scalable concurrency support.

(Continued on next page)



SPEC CPU®2026 Integer Speed Result

Copyright 2026 Standard Performance Evaluation Corporation

Lenovo Global Technology

(Test Sponsor: Ampere Computing, Inc.)

ThinkSystem HR330A

(3.00 GHz Ampere eMAG 8180)

SPECspeed®2026_int_base = 1.00

SPECspeed®2026_int_energy_base = 1.00

SPECspeed®2026_int_peak = 1.07

SPECspeed®2026_int_energy_peak = 1.08

CPU2026 License: 6412

Test Sponsor: Ampere Computing, Inc.

Tested by: Ampere Computing, Inc.

Test Date: Feb-2026

Hardware Availability: Apr-2019

Software Availability: Aug-2025

General Notes (Continued)

sources available from <https://github.com/jemalloc/jemalloc/tree/1972241>
and built via `./configure --with-lg-quantum=3` which used `system gcc-14 -O3`

This benchmark result is intended to provide perspective on past power and/or performance using the historical hardware and/or software described on this result page.

The system as described on this result page was formerly generally available. At the time of this publication, it may not be shipping, and/or may not be supported, and/or may fail to meet other tests of General Availability described in the SPEC OSG Policy document, <http://www.spec.org/osg/policy.html>

This measured result may not be representative of the result that would be measured were this benchmark run with hardware and software available as of the publication date.

Platform Notes

Sysinfo program /home/mjm/RC2/bin/sysinfo
Rev: 779ab21020787073335a329f3a45e2cd
running on emag Mon Feb 23 02:46:39 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-lubuntu8.8)`
12. Services, from `systemctl list-unit-files`
13. Linux kernel boot-time arguments, from `/proc/cmdline`
14. `sysctl`

(Continued on next page)



SPEC CPU®2026 Integer Speed Result

Copyright 2026 Standard Performance Evaluation Corporation

Lenovo Global Technology
(Test Sponsor: Ampere Computing, Inc.)
ThinkSystem HR330A
(3.00 GHz Ampere eMAG 8180)

SPECspeed®2026_int_base = 1.00
SPECspeed®2026_int_energy_base = 1.00
SPECspeed®2026_int_peak = 1.07
SPECspeed®2026_int_energy_peak = 1.08

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

Test Date: Feb-2026
Hardware Availability: Apr-2019
Software Availability: Aug-2025

Platform Notes (Continued)

15. /sys/kernel/mm/transparent_hugepage
16. /sys/kernel/mm/transparent_hugepage/khugepaged
17. OS release
18. Disk information
19. /sys/devices/virtual/dmi/id
20. dmidecode
21. BIOS

1. `uname -srv`
Linux 6.8.0 #1 SMP PREEMPT_DYNAMIC Fri Feb 28 00:25:30 UTC 2025 aarch64

2. `w`
02:46:39 up 66 days, 3:11, 2 users, load average: 1.07, 10.11, 21.62
USER TTY FROM LOGIN@ IDLE JCPU PCPU WHAT
mjm 10.13.114.186 28Jan26 2days 0.00s 0.02s sshd: mjm [priv]

3. Username
From environment variable \$USER: mjm

4. `ulimit -a`
time(seconds) unlimited
file(blocks) unlimited
data(kbytes) unlimited
stack(kbytes) unlimited
coredump(blocks) 0
memory(kbytes) unlimited
locked memory(kbytes) 16691648
process 128681
nofiles 1024
vmemory(kbytes) unlimited
locks unlimited
rtprio 0

5. `sysinfo process ancestry`
/usr/lib/systemd/systemd --system --deserialize=66
SCREEN
-bin/tcsh
runcpu --flagsurl=\$SPEC/config/flags/gcc.xml -c emag-golden --reportable -n 3 --tune=base,peak --power
intspeed

(Continued on next page)



SPEC CPU®2026 Integer Speed Result

Copyright 2026 Standard Performance Evaluation Corporation

Lenovo Global Technology

(Test Sponsor: Ampere Computing, Inc.)

ThinkSystem HR330A

(3.00 GHz Ampere eMAG 8180)

SPECSpeed®2026_int_base = 1.00

SPECSpeed®2026_int_energy_base = 1.00

SPECSpeed®2026_int_peak = 1.07

SPECSpeed®2026_int_energy_peak = 1.08

CPU2026 License: 6412

Test Sponsor: Ampere Computing, Inc.

Tested by: Ampere Computing, Inc.

Test Date: Feb-2026

Hardware Availability: Apr-2019

Software Availability: Aug-2025

Platform Notes (Continued)

```

runccpu --flagsurl $SPEC/config/flags/gcc.xml --configfile emag-golden --reportable --iterations 3 --tune
  base,peak --power --runmode speed --tune base:peak --size refspeed intspeak --nopreenv --note-preenv
  --logfile $SPEC/tmp/CPU2026.069/templogs/preenv.intspeed.069.0.log --lognum 069.0 --from_runccpu 2
specperl $SPEC/bin/sysinfo -f
$SPEC = /home/mjm/RC2

```

6. /proc/cpuinfo

```

CPU implementer : 0x50
CPU architecture: 8
CPU variant     : 0x3
CPU part       : 0x000
CPU revision   : 2
Features       : fp asimd evtstrm aes pmull sha1 sha2 crc32 cpuid

```

7. lscpu

From lscpu from util-linux 2.39.3:

```

Architecture: aarch64
CPU op-mode(s): 32-bit, 64-bit
Byte Order: Little Endian
CPU(s): 32
On-line CPU(s) list: 0-31
Vendor ID: APM
Model name: -
Model: 2
Thread(s) per core: 1
Core(s) per socket: 32
Socket(s): 1
Stepping: 0x3
Frequency boost: disabled
CPU(s) scaling MHz: 100%
CPU max MHz: 2911.7639
CPU min MHz: 363.9700
BogoMIPS: 80.00
Flags: fp asimd evtstrm aes pmull sha1 sha2 crc32 cpuid
L1d cache: 1 MiB (32 instances)
L1i cache: 1 MiB (32 instances)
L2 cache: 4 MiB (16 instances)
NUMA node(s): 1
NUMA node0 CPU(s): 0-31
Vulnerability Gather data sampling: Not affected
Vulnerability Itlb multihit: Not affected
Vulnerability L1tf: Not affected

```

(Continued on next page)



SPEC CPU®2026 Integer Speed Result

Copyright 2026 Standard Performance Evaluation Corporation

Lenovo Global Technology

(Test Sponsor: Ampere Computing, Inc.)

ThinkSystem HR330A

(3.00 GHz Ampere eMAG 8180)

SPECSpeed®2026_int_base = 1.00

SPECSpeed®2026_int_energy_base = 1.00

SPECSpeed®2026_int_peak = 1.07

SPECSpeed®2026_int_energy_peak = 1.08

CPU2026 License: 6412

Test Sponsor: Ampere Computing, Inc.

Tested by: Ampere Computing, Inc.

Test Date: Feb-2026

Hardware Availability: Apr-2019

Software Availability: Aug-2025

Platform Notes (Continued)

Vulnerability Mds:	Not affected
Vulnerability Meltdown:	Mitigation; PTI
Vulnerability Mmio stale data:	Not affected
Vulnerability Retbleed:	Not affected
Vulnerability Spec rstack overflow:	Not affected
Vulnerability Spec store bypass:	Vulnerable
Vulnerability Spectre v1:	Mitigation; __user pointer sanitization
Vulnerability Spectre v2:	Vulnerable
Vulnerability Srbds:	Not affected
Vulnerability Tsx async abort:	Not affected

From lscpu --cache:

NAME	ONE-SIZE	ALL-SIZE	WAYS	TYPE	LEVEL	SETS	PHY-LINE	COHERENCY-SIZE
L1d	32K		1M	8 Data		1		
L1i	32K		1M	8 Instruction		1		
L2	256K		4M	32 Unified		2		

8. numactl --hardware

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

```
available: 1 nodes (0)
node 0 cpus: 0-31
node 0 size: 130403 MB
node 0 free: 63676 MB
node distances:
node    0
  0:  10
```

9. /proc/meminfo

MemTotal: 133533376 kB

10. who -r

run-level 5 Dec 18 23:35

11. Systemd service manager version: systemd 255 (255.4-1ubuntu8.8)

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

(Continued on next page)



SPEC CPU®2026 Integer Speed Result

Copyright 2026 Standard Performance Evaluation Corporation

Lenovo Global Technology

(Test Sponsor: Ampere Computing, Inc.)

ThinkSystem HR330A

(3.00 GHz Ampere eMAG 8180)

SPECSpeed®2026_int_base = 1.00

SPECSpeed®2026_int_energy_base = 1.00

SPECSpeed®2026_int_peak = 1.07

SPECSpeed®2026_int_energy_peak = 1.08

CPU2026 License: 6412

Test Sponsor: Ampere Computing, Inc.

Tested by: Ampere Computing, Inc.

Test Date: Feb-2026

Hardware Availability: Apr-2019

Software Availability: Aug-2025

Platform Notes (Continued)

```

cloud-init-local console-setup cron dmesg e2scrub_reap finalrd getty@ grub-common
grub-initrtd-fallback keyboard-setup lvm2-monitor multipathd networkd-dispatcher open-iscsi
open-vm-tools pollinate power-profiles-daemon rsyslog secureboot-db setvtrgb snapd sysstat
systemd-networkd systemd-networkd-wait-online systemd-pstore systemd-resolved
systemd-timesyncd ua-reboot-cmds ubuntu-advantage udisks2 ufw unattended-upgrades vgaauth
enabled-runtime netplan-ovs-cleanup systemd-fsck-root systemd-remount-fs
disabled console-getty debug-shell ipmievd iscsid nftables rsync ssh systemd-boot-check-no-failures
systemd-confext 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
systemd-time-wait-sync
generated openipmi perlbal
indirect serial-getty@ systemd-sysupdate systemd-sysupdate-reboot uuid
masked 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
root=UUID=16268541-06d0-4374-97ca-2d512d4db26f
ro
cma=1024M
iommu.passthrough=1

```

14. 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
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

```

(Continued on next page)



SPEC CPU®2026 Integer Speed Result

Copyright 2026 Standard Performance Evaluation Corporation

Lenovo Global Technology

(Test Sponsor: Ampere Computing, Inc.)

ThinkSystem HR330A

(3.00 GHz Ampere eMAG 8180)

SPECspeed®2026_int_base = 1.00

SPECspeed®2026_int_energy_base = 1.00

SPECspeed®2026_int_peak = 1.07

SPECspeed®2026_int_energy_peak = 1.08

CPU2026 License: 6412

Test Sponsor: Ampere Computing, Inc.

Tested by: Ampere Computing, Inc.

Test Date: Feb-2026

Hardware Availability: Apr-2019

Software Availability: Aug-2025

Platform Notes (Continued)

```

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

```

```

-----
16. /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

```

```

-----
17. OS release
   From /etc/*-release /etc/*-version
   os-release Ubuntu 24.04.1 LTS

```

```

-----
18. Disk information
SPEC is set to: /home/mjm/RC2
  Filesystem      Type  Size  Used Avail Use% Mounted on
  /dev/sda2       ext4  439G  196G  221G  48% /

```

```

-----
19. /sys/devices/virtual/dmi/id
   Vendor:          Lenovo
   Product:         HR330A          7X33CT01WW
   Product Family: Lenovo ThinkSystem HR330A/HR350A

```

```

-----
20. 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:
  8x Samsung M393A2K43CB2-CTD 16 GB 2 rank 2667

```

(Continued on next page)



SPEC CPU®2026 Integer Speed Result

Copyright 2026 Standard Performance Evaluation Corporation

Lenovo Global Technology

(Test Sponsor: Ampere Computing, Inc.)

ThinkSystem HR330A

(3.00 GHz Ampere eMAG 8180)

SPECSpeed®2026_int_base = 1.00

SPECSpeed®2026_int_energy_base = 1.00

SPECSpeed®2026_int_peak = 1.07

SPECSpeed®2026_int_energy_peak = 1.08

CPU2026 License: 6412

Test Sponsor: Ampere Computing, Inc.

Tested by: Ampere Computing, Inc.

Test Date: Feb-2026

Hardware Availability: Apr-2019

Software Availability: Aug-2025

Platform Notes (Continued)

21. BIOS

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

BIOS Vendor: LENOVO
BIOS Version: HVE104N-1.12
BIOS Date: 11/29/2019
BIOS Revision: 1.12
Firmware Revision: 1.7

Power Settings Notes

OS CPU governor was set using the command:

```
echo performance | tee /sys/devices/system/cpu/cpu*/cpufreq/scaling_governor
```

Compiler Version Notes

```
C | 854.graph500_s(base, peak)
```

gcc (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++ | 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 0) 834.vpr_s(base pass 0, peak pass 1, peak pass 2) 835.gem5_s(base pass 0, peak pass 0) 838.diamond_s(base pass 0, peak pass 1, peak pass 2) 846.minizinc_s(base pass 0, peak pass 1, peak pass 2)
```

(Continued on next page)



SPEC CPU®2026 Integer Speed Result

Copyright 2026 Standard Performance Evaluation Corporation

Lenovo Global Technology

(Test Sponsor: Ampere Computing, Inc.)

ThinkSystem HR330A

(3.00 GHz Ampere eMAG 8180)

SPECspeed®2026_int_base = 1.00

SPECspeed®2026_int_energy_base = 1.00

SPECspeed®2026_int_peak = 1.07

SPECspeed®2026_int_energy_peak = 1.08

CPU2026 License: 6412

Test Sponsor: Ampere Computing, Inc.

Tested by: Ampere Computing, Inc.

Test Date: Feb-2026

Hardware Availability: Apr-2019

Software Availability: Aug-2025

Compiler Version Notes (Continued)

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 0) 834.vpr_s(base pass 0, peak pass 1, peak pass 2) 835.gem5_s(base pass 0, peak pass 0) 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

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 0) 834.vpr_s(base pass 0, peak pass 1, peak pass 2) 835.gem5_s(base pass 0, peak pass 0) 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

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 0) 834.vpr_s(base pass 0, peak pass 1, peak pass 2) 835.gem5_s(base pass 0, peak pass 0) 838.diamond_s(base pass 0, peak pass 1, peak pass 2) 846.minizinc_s(base pass 0, peak pass 1, peak pass 2)

(Continued on next page)



SPEC CPU®2026 Integer Speed Result

Copyright 2026 Standard Performance Evaluation Corporation

Lenovo Global Technology

(Test Sponsor: Ampere Computing, Inc.)

ThinkSystem HR330A

(3.00 GHz Ampere eMAG 8180)

SPECspeed®2026_int_base = 1.00

SPECspeed®2026_int_energy_base = 1.00

SPECspeed®2026_int_peak = 1.07

SPECspeed®2026_int_energy_peak = 1.08

CPU2026 License: 6412

Test Sponsor: Ampere Computing, Inc.

Tested by: Ampere Computing, Inc.

Test Date: Feb-2026

Hardware Availability: Apr-2019

Software Availability: Aug-2025

Compiler Version Notes (Continued)

```
-----
gcc (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.
-----
```

Base Compiler Invocation

C benchmarks:

gcc

C++ benchmarks:

g++

Benchmarks using both C and C++:

g++ gcc

Base Portability Flags

```
801.xz_s: -DSPEC_LP64
807.ntest_s: -DSPEC_LP64
817.flac_s: -DSPEC_LP64
821.gcc_s: -DSPEC_LP64
823.llvm_s: -DSPEC_LP64
827.cppcheck_s: -DSPEC_LP64
829.abc_s: -DSPEC_LP64
834.vpr_s: -fno-finite-math-only -DSPEC_LP64
835.gem5_s: -fno-finite-math-only -DSPEC_LP64
838.diamond_s: -DSPEC_LP64
846.minizinc_s: -DSPEC_LP64
853.ns3_s: -fno-finite-math-only -DSPEC_LP64
854.graph500_s: -DSPEC_LP64
```

Base Optimization Flags

C benchmarks:

```
-mabi=lp64 -std=c18 -g -O3 -ffast-math -mcpu=native -flto=16
-fopenmp -DSPEC_OPENMP -L/home/mjm/jemalloc/lib -ljemalloc
```

(Continued on next page)



SPEC CPU®2026 Integer Speed Result

Copyright 2026 Standard Performance Evaluation Corporation

Lenovo Global Technology

(Test Sponsor: Ampere Computing, Inc.)

ThinkSystem HR330A

(3.00 GHz Ampere eMAG 8180)

SPECSpeed®2026_int_base = 1.00

SPECSpeed®2026_int_energy_base = 1.00

SPECSpeed®2026_int_peak = 1.07

SPECSpeed®2026_int_energy_peak = 1.08

CPU2026 License: 6412

Test Sponsor: Ampere Computing, Inc.

Tested by: Ampere Computing, Inc.

Test Date: Feb-2026

Hardware Availability: Apr-2019

Software Availability: Aug-2025

Base Optimization Flags (Continued)

C++ benchmarks:

```
807.ntest_s: -mabi=lp64 -std=c++17 -g -O3 -ffast-math -mcpu=native
-flto=16 -fopenmp -DSPEC_OPENMP -L/home/mjm/jemalloc/lib
-ljemalloc
```

```
827.cppcheck_s: -mabi=lp64 -std=c++17 -g -O3 -ffast-math -mcpu=native
-flto=16 -pthread -L/home/mjm/jemalloc/lib -ljemalloc
```

```
853.ns3_s: -mabi=lp64 -std=c++17 -g -O3 -ffast-math -mcpu=native
-flto=16 -L/home/mjm/jemalloc/lib -ljemalloc
```

Benchmarks using both C and C++:

```
801.xz_s: -mabi=lp64 -std=c++17 -std=c18 -g -O3 -ffast-math
-mcpu=native -flto=16 -pthread -L/home/mjm/jemalloc/lib
-ljemalloc
```

817.flac_s: Same as 801.xz_s

```
821.gcc_s: -mabi=lp64 -std=c++17 -std=c18 -g -O3 -ffast-math
-mcpu=native -flto=16 -L/home/mjm/jemalloc/lib -ljemalloc
```

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 Compiler Invocation

C benchmarks:

gcc

(Continued on next page)



SPEC CPU®2026 Integer Speed Result

Copyright 2026 Standard Performance Evaluation Corporation

Lenovo Global Technology

(Test Sponsor: Ampere Computing, Inc.)

ThinkSystem HR330A

(3.00 GHz Ampere eMAG 8180)

SPECspeed®2026_int_base = 1.00

SPECspeed®2026_int_energy_base = 1.00

SPECspeed®2026_int_peak = 1.07

SPECspeed®2026_int_energy_peak = 1.08

CPU2026 License: 6412

Test Sponsor: Ampere Computing, Inc.

Tested by: Ampere Computing, Inc.

Test Date: Feb-2026

Hardware Availability: Apr-2019

Software Availability: Aug-2025

Peak Compiler Invocation (Continued)

C++ benchmarks:

g++

Benchmarks using both C and C++:

g++ gcc

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:

```
-mabi=lp64 -std=c18 -fprofile-generate -fprofile-use -g -Ofast
-mcpu=native -flto=16 -fopenmp -DSPEC_OPENMP -L/home/mjm/jemalloc/lib
-ljemalloc
```

C++ benchmarks:

```
807.ntest_s: -mabi=lp64 -std=c++17 -fprofile-generate -fprofile-use -g
-Ofast -mcpu=native -flto=16 -fopenmp -DSPEC_OPENMP
-L/home/mjm/jemalloc/lib -ljemalloc
```

```
827.cppcheck_s: -mabi=lp64 -std=c++17 -fprofile-generate -fprofile-use -g
-Ofast -mcpu=native -flto=16 -pthread
-L/home/mjm/jemalloc/lib -ljemalloc
```

```
853.ns3_s: -mabi=lp64 -std=c++17 -fprofile-generate -fprofile-use -g
-Ofast -mcpu=native -flto=16 -L/home/mjm/jemalloc/lib
-ljemalloc
```

Benchmarks using both C and C++:

```
801.xz_s: -mabi=lp64 -std=c++17 -std=c18 -fprofile-generate
-fprofile-use -g -Ofast -mcpu=native -flto=16 -pthread
-L/home/mjm/jemalloc/lib -ljemalloc
```

```
817.flac_s: basepeak = yes
```

(Continued on next page)



SPEC CPU®2026 Integer Speed Result

Copyright 2026 Standard Performance Evaluation Corporation

Lenovo Global Technology

(Test Sponsor: Ampere Computing, Inc.)

ThinkSystem HR330A

(3.00 GHz Ampere eMAG 8180)

SPECspeed®2026_int_base = 1.00

SPECspeed®2026_int_energy_base = 1.00

SPECspeed®2026_int_peak = 1.07

SPECspeed®2026_int_energy_peak = 1.08

CPU2026 License: 6412

Test Sponsor: Ampere Computing, Inc.

Tested by: Ampere Computing, Inc.

Test Date: Feb-2026

Hardware Availability: Apr-2019

Software Availability: Aug-2025

Peak Optimization Flags (Continued)

```
821.gcc_s: -mabi=lp64 -std=c++17 -std=c18 -fprofile-generate
-fprofile-use -g -Ofast -mcpu=native -fltto=16
-L/home/mjm/jemalloc/lib -ljemalloc
```

823.llvm_s: Same as 801.xz_s

829.abc_s: basepeak = yes

834.vpr_s: Same as 821.gcc_s

835.gem5_s: basepeak = yes

838.diamond_s: Same as 801.xz_s

846.minizinc_s: Same as 801.xz_s

The flags file that was used to format this result can be browsed at

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

You can also download the XML flags source by saving the following link:

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

PTDaemon, SPEC CPU, and SPECspeed are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

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

Tested with SPEC CPU®2026 v0.903.0 on 2026-02-22 21:46:37-0500.

Report generated on 2026-05-04 23:26:39 by CPU2026 PDF formatter (unknown).

Originally published on 2026-05-05.