SPEC CPU®2026 Floating Point Rate Result

Lenovo Global Technology

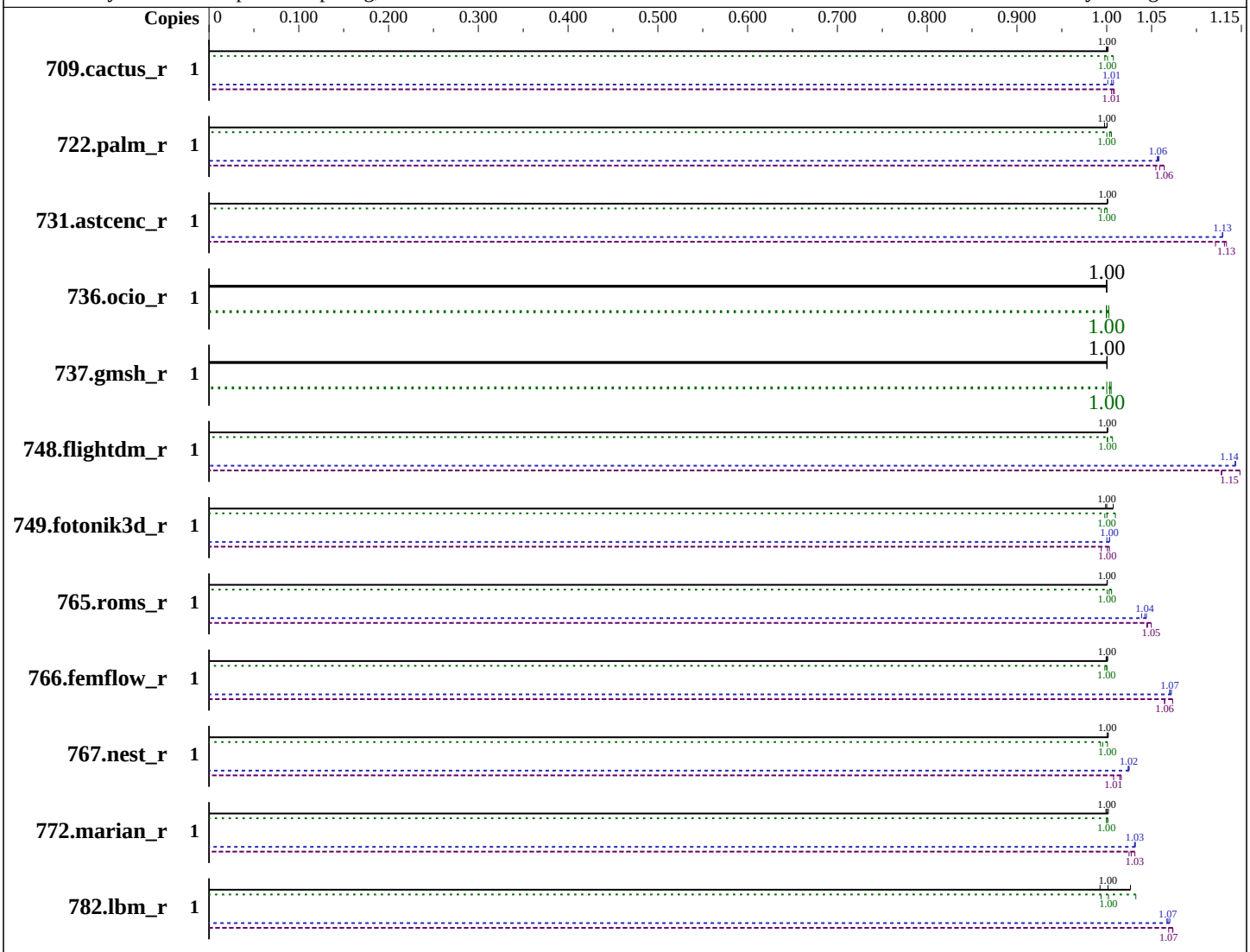
(Test Sponsor: Ampere Computing, Inc.)

ThinkSystem HR330A
(3.00 GHz Ampere eMAG 8180)

SPECrate®2026_fp_base =	1.00
SPECrate®2026_fp_energy_base =	1.00
SPECrate®2026_fp_peak =	1.05
SPECrate®2026_fp_energy_peak =	1.05

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
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)

(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
System State:	Run level 5 (multi-user)
Base Pointers:	64-bit
Peak Pointers:	64-bit

(Continued on next page)

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Hardware (Continued)

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)

Other: jemalloc v5.3+, commit hash 1972241
Power Management: OS CPU governor set to "performance"

Power

Max. Power (W): 97.36
Idle Power (W): 75.76
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

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	1	858	1.00	72.4	1.01	84.3	86.7	857	1.00	73.1	0.998	85.3	88.0	**858**	**1.00**	**72.9**	**1.00**	**85.0**	**87.2**

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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SPECrate®2026_fp_peak = 1.05

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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 (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	1	1323	0.998	112	1.00	84.4	92.3	1319	1.00	111	1.01	84.5	91.8	**1320**	**1.00**	**112**	**1.00**	**84.9**	**93.6**
731.astcenc_r	1	**839**	**1.00**	**70.0**	**1.00**	**83.4**	**85.4**	839	1.00	70.2	0.998	83.6	85.8	839	1.00	70.5	0.994	84.0	85.9
736.ocio_r	1	**875**	**1.00**	**73.2**	**1.00**	**83.7**	**90.9**	875	1.00	73.1	1.00	83.5	90.9	875	1.00	73.3	1.00	83.7	90.3
737.gmsh_r	1	459	1.00	38.3	1.00	83.4	86.5	**459**	**1.00**	**38.5**	**1.00**	**83.8**	**86.3**	459	1.00	38.3	1.00	83.6	85.9
748.flightdm_r	1	**715**	**1.00**	**60.1**	**1.00**	**84.0**	**86.3**	715	1.00	59.8	1.01	83.6	85.9	716	1.00	60.1	1.00	84.0	86.7
749.fotonik3d_r	1	**1156**	**1.00**	**98.7**	**1.00**	**85.4**	**95.8**	1148	1.01	97.8	1.01	85.2	87.3	1157	0.999	98.9	0.998	85.5	88.4
765.roms_r	1	**1574**	**1.00**	**138**	**1.00**	**87.4**	**90.8**	1574	1.00	137	1.01	87.0	89.7	1574	1.00	137	1.00	87.2	97.4
766.femflow_r	1	**1466**	**1.00**	**124**	**1.00**	**84.7**	**87.3**	1468	0.999	125	0.998	84.8	88.0	1465	1.00	124	1.00	84.8	91.4
767.nest_r	1	792	1.00	66.3	0.996	83.8	88.3	**792**	**1.00**	**66.0**	**1.00**	**83.3**	**87.2**	793	1.00	66.5	0.993	83.9	88.1
772.marian_r	1	**1579**	**1.00**	**133**	**1.00**	**84.0**	**86.8**	1580	0.999	133	1.00	83.9	87.3	1576	1.00	132	1.00	84.0	90.1
782.lbm_r	1	577	0.993	51.3	0.994	88.9	91.4	558	1.03	49.4	1.03	88.5	91.2	**572**	**1.00**	**50.9**	**1.00**	**89.0**	**91.7**

SPECrate®2026_fp_base = 1.00

SPECrate®2026_fp_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	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	1	852	1.01	72.3	1.01	84.9	87.9	857	1.00	72.4	1.01	84.5	86.7	**853**	**1.01**	**72.5**	**1.01**	**85.0**	**87.2**
722.palm_r	1	1247	1.06	106	1.06	84.8	94.2	1250	1.06	106	1.05	85.0	94.4	**1249**	**1.06**	**105**	**1.06**	**84.4**	**92.9**
731.astcenc_r	1	744	1.13	61.9	1.13	83.2	84.7	744	1.13	62.5	1.12	84.0	86.2	**744**	**1.13**	**61.8**	**1.13**	**83.1**	**85.7**
736.ocio_r	1	**875**	**1.00**	**73.2**	**1.00**	**83.7**	**90.9**	875	1.00	73.1	1.00	83.5	90.9	875	1.00	73.3	1.00	83.7	90.3
737.gmsh_r	1	459	1.00	38.3	1.00	83.4	86.5	**459**	**1.00**	**38.5**	**1.00**	**83.8**	**86.3**	459	1.00	38.3	1.00	83.6	85.9
748.flightdm_r	1	**626**	**1.14**	**52.4**	**1.15**	**83.6**	**86.1**	626	1.14	53.3	1.13	85.1	88.1	626	1.14	53.3	1.13	85.2	87.3
749.fotonik3d_r	1	1152	1.00	98.4	1.00	85.4	87.5	1156	1.00	99.3	0.994	85.9	96.4	**1152**	**1.00**	**98.6**	**1.00**	**85.6**	**87.8**
765.roms_r	1	1516	1.04	132	1.05	86.8	89.3	**1511**	**1.04**	**131**	**1.05**	**86.8**	**90.5**	1508	1.04	132	1.04	87.4	91.4
766.femflow_r	1	**1371**	**1.07**	**117**	**1.06**	**85.1**	**87.7**	1368	1.07	116	1.07	84.6	87.8	1371	1.07	117	1.06	85.2	87.8
767.nest_r	1	775	1.02	65.1	1.01	84.1	88.5	774	1.02	65.0	1.02	84.0	88.6	**774**	**1.02**	**65.6**	**1.01**	**84.7**	**90.1**
772.marian_r	1	**1531**	**1.03**	**129**	**1.03**	**84.0**	**86.7**	1532	1.03	129	1.02	84.5	90.2	1530	1.03	129	1.03	84.4	86.5
782.lbm_r	1	**536**	**1.07**	**47.7**	**1.07**	**88.9**	**90.5**	537	1.07	47.5	1.07	88.5	90.0	535	1.07	47.5	1.07	88.7	90.5

SPECrate®2026_fp_peak = 1.05

SPECrate®2026_fp_energy_peak = 1.05

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

Submit Notes

```
The config file option 'submit' was used.
```

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"
```

General Notes

```
jemalloc is a general purpose malloc(3) implementation that emphasizes
fragmentation avoidance and scalable concurrency support.
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 Tue Feb 24 19:55:00 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 (255.4-1ubuntu8.8)
 12. Services, from systemctl list-unit-files
```

(Continued on next page)

Platform Notes (Continued)

```
13. Linux kernel boot-time arguments, from /proc/cmdline
14. sysctl
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 -srvm
  Linux 6.8.0 #1 SMP PREEMPT_DYNAMIC Fri Feb 28 00:25:30 UTC 2025 aarch64

------------------------------------------------------------
2. w
   19:55:00 up 67 days, 20:19,  3 users,  load average: 0.99, 0.91, 0.94
  USER     TTY      FROM             LOGIN@   IDLE   JCPU   PCPU WHAT
  mjm              10.13.114.186    28Jan26  4days  0.00s  0.02s sshd: mjm [priv]
  mjm              10.41.42.178     03:26    4days  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
```

(Continued on next page)

Platform Notes (Continued)

```
 -bin/tcsh
runcpu --flagsurl=$SPEC/config/flags/gcc.xml -C 1 -c emag-golden --reportable -n 3 --tune=base,peak --power
   intrate fprate
runcpu --flagsurl $SPEC/config/flags/gcc.xml --copies 1 --configfile emag-golden --reportable --iterations 3
  --tune base,peak --power --runmode rate --tune base:peak --size refrate fprate --nopreenv --note-preenv
  --logfile $SPEC/tmp/CPU2026.071/templogs/preenv.fprate.071.1.log --lognum 071.1 --from_runcpu 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
```

(Continued on next page)

Platform Notes (Continued)

```
  Vulnerability Gather data sampling: Not affected
  Vulnerability Itlb multihit:        Not affected
  Vulnerability L1tf:                 Not affected
  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: 98528 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

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

(Continued on next page)

Platform Notes (Continued)

```
12. Services, from systemctl list-unit-files
  STATE             UNIT FILES
  enabled           ModemManager apparmor apport blk-availability cloud-config cloud-final cloud-init
                    cloud-init-local console-setup cron dmesg e2scrub_reap finalrd getty@ grub-common
                  grub-initrd-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 vgauth
  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 uuidd
  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
```

(Continued on next page)

Platform Notes (Continued)

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

------------------------------------------------------------
15. /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

------------------------------------------------------------
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  278G  139G  67% /

------------------------------------------------------------
19. /sys/devices/virtual/dmi/id
    Vendor:          Lenovo
    Product:         HR330A             7X33CTO1WW
    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:
```

(Continued on next page)

Platform Notes (Continued)

```
     8x Samsung M393A2K43CB2-CTD 16 GB 2 rank 2667


 ------------------------------------------------------------
 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       | 782.lbm_r(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++     | 731.astcenc_r(base, peak) 736.ocio_r(base, peak)
        | 748.flightdm_r(base, peak) 766.femflow_r(base, peak)
        | 767.nest_r(base, peak) 772.marian_r(base, peak)
------------------------------------------------------------------------------
g++ (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++, C  | 709.cactus_r(base pass 0, peak pass 1, peak pass 2) 737.gmsh_r(base
        | pass 0, peak pass 0)
------------------------------------------------------------------------------
```

(Continued on next page)

Compiler Version Notes (Continued)

```
g++ (GCC) 15.2.0
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------------------------------------------------------------------------------

==============================================================================
C++, C  | 709.cactus_r(base pass 0, peak pass 1, peak pass 2) 737.gmsh_r(base
        | pass 0, peak pass 0)
------------------------------------------------------------------------------
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  | 709.cactus_r(base pass 0, peak pass 1, peak pass 2) 737.gmsh_r(base
        | pass 0, peak pass 0)
------------------------------------------------------------------------------
g++ (GCC) 15.2.0
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warranty; not even for MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.
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==============================================================================
C++, C  | 709.cactus_r(base pass 0, peak pass 1, peak pass 2) 737.gmsh_r(base
        | pass 0, peak pass 0)
------------------------------------------------------------------------------
gcc (GCC) 15.2.0
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warranty; not even for MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.
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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

709.cactus_r: -DSPEC_LP64
722.palm_r: -DSPEC_LP64
731.astcenc_r: -DSPEC_LP64
736.ocio_r: -fno-finite-math-only -DSPEC_LP64
737.gmsh_r: -fno-fast-math -DSPEC_LP64
748.flightdm_r: -DSPEC_LP64
749.fotonik3d_r: -DSPEC_LP64
765.roms_r: -DSPEC_LP64
766.femflow_r: -DSPEC_LP64
767.nest_r: -fno-finite-math-only -DSPEC_LP64
772.marian_r: -DSPEC_LP64
782.lbm_r: -DSPEC_LP64

Base Optimization Flags

C benchmarks:
-mabi=lp64 -std=c18 -g -O3 -ffast-math -mcpu=native -flto=16
-L/home/mjm/jemalloc/lib -ljemalloc

C++ benchmarks:

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

(Continued on next page)

Base Optimization Flags (Continued)

736.ocio_r: `Same as 731.astcenc_r`

748.flightdm_r: `Same as 731.astcenc_r`

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

767.nest_r: `Same as 731.astcenc_r`

772.marian_r: `Same as 766.femflow_r`

Fortran benchmarks:
`-mabi=lp64 -std=f2018 -g -O3 -ffast-math -mcpu=native -flto=16 -fallow-argument-mismatch -L/home/mjm/jemalloc/lib -ljemalloc`

Benchmarks using both C and C++:
`-mabi=lp64 -std=c++17 -std=c18 -g -O3 -ffast-math -mcpu=native -flto=16 -L/home/mjm/jemalloc/lib -ljemalloc`

Peak Compiler Invocation

C benchmarks:
`gcc`

C++ benchmarks:
`g++`

Fortran benchmarks:
`gfortran`

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 -L/home/mjm/jemalloc/lib -ljemalloc

C++ benchmarks:

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

736.ocio_r: basepeak = yes

748.flightdm_r: Same as 731.astcenc_r

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

767.nest_r: Same as 731.astcenc_r

772.marian_r: Same as 766.femflow_r

Fortran benchmarks:
-mabi=lp64 -std=f2018 -fprofile-generate -fprofile-use -g -Ofast
-mcpu=native -flto=16 -fallow-argument-mismatch
-L/home/mjm/jemalloc/lib -ljemalloc

Benchmarks using both C and C++:

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

737.gmsh_r: basepeak = yes

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

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 2026-02-24 14:54:58-0500.
Report generated on 2026-05-04 23:26:23 by CPU2026 PDF formatter (unknown).
Originally published on 2026-05-05.