



SPEC CPU®2017 Floating Point Rate Result

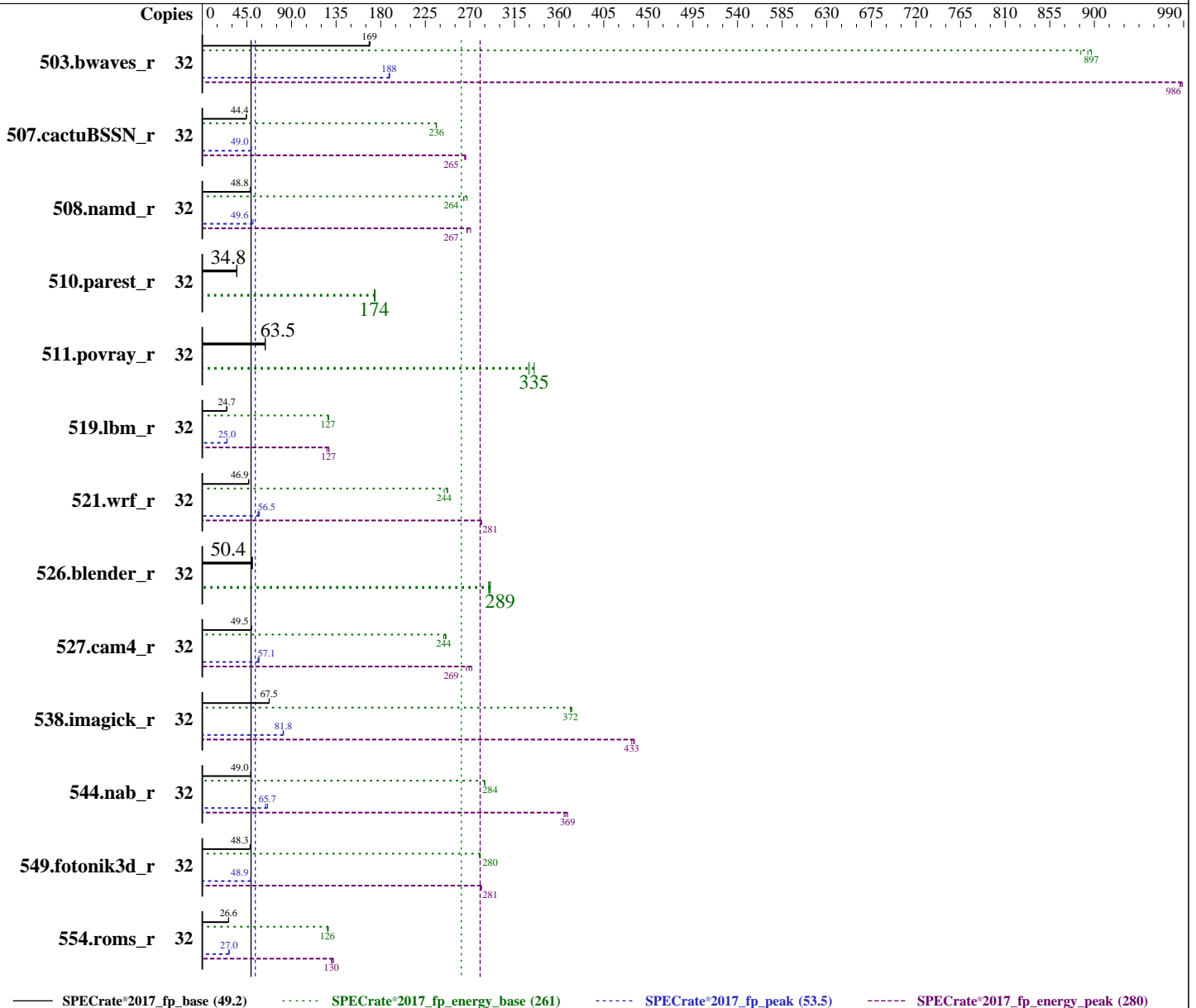
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Lenovo Global Technology
(Test Sponsor: Ampere Computing, Inc.)
ThinkSystem HR330A
(3.00 GHz Ampere eMAG 8180)

SPECrate®2017_fp_base = 49.2
SPECrate®2017_fp_energy_base = 261
SPECrate®2017_fp_peak = 53.5
SPECrate®2017_fp_energy_peak = 280

CPU2017 License: 6412
Test Sponsor: Ampere Computing, Inc.
Tested by: Ampere Computing, Inc.

Test Date: Mar-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
Parallel: No
Firmware: Version 1.12 released Nov-2019
File System: ext4

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Hardware (Continued)

Cache L1: 32 KB I + 32 KB D on chip per core
L2: 4 MB I+D on chip per chip (256 KiB 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
Other: CPU Cooling: Air

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): 296.63
Idle Power (W): 76.41
Min. Temperature (C): 20.75
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: YokogawaWT310E
Serial Number: T11733385
Input Connection: Serial over USB
Metrology Institute: NIST
Calibration By: Yokogawa USA
Calibration Label: T126622
Calibration Date: 18-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
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Table continues on next page. Results appear in the order in which they were run. Bold underlined text indicates a median measurement.



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Base Results Table (Continued)

Benchmark	Copies	Seconds	Ratio	Energy (kJ)	Energy Ratio	Average Power	Maximum Power	Seconds	Ratio	Energy (kJ)	Energy Ratio	Average Power	Maximum Power	Seconds	Ratio	Energy (kJ)	Energy Ratio	Average Power	Maximum Power
503.bwaves_r	32	1903	169	390	897	205	224	1907	168	395	886	207	227	1897	169	392	893	206	234
507.cactuBSSN_r	32	913	44.4	189	236	207	238	912	44.4	188	236	207	251	912	44.4	189	236	207	246
508.namd_r	32	623	48.8	124	267	199	237	627	48.5	126	264	201	237	623	48.8	126	264	201	254
510.parest_r	32	2402	34.9	522	174	218	259	2402	34.8	525	174	219	282	2403	34.8	524	174	218	259
511.povray_r	32	1177	63.5	242	335	206	263	1176	63.5	246	330	209	264	1178	63.4	246	330	209	264
519.lbm_r	32	1364	24.7	300	128	220	250	1364	24.7	302	127	222	246	1365	24.7	301	127	221	244
521.wrf_r	32	1527	46.9	316	248	207	242	1534	46.7	317	247	207	234	1528	46.9	321	244	210	254
526.blender_r	32	968	50.4	183	289	189	236	967	50.4	182	291	188	236	968	50.4	182	290	188	230
527.cam4_r	32	1131	49.5	248	245	220	289	1131	49.5	250	244	221	289	1127	49.6	248	246	220	290
538.imagick_r	32	1180	67.5	232	371	197	284	1180	67.5	232	372	197	285	1177	67.6	231	373	196	286
544.nab_r	32	1101	48.9	205	285	186	211	1099	49.0	205	284	187	207	1098	49.0	205	285	187	205
549.fotonik3d_r	32	2581	48.3	496	280	192	223	2587	48.2	497	280	192	223	2584	48.3	495	280	192	224
554.roms_r	32	1920	26.5	444	126	231	278	1914	26.6	444	126	232	262	1912	26.6	441	127	231	277

SPECrate®2017_fp_base = **49.2**

SPECrate®2017_fp_energy_base = **261**

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
503.bwaves_r	32	1703	188	354	987	208	232	1703	188	355	986	208	232	1697	189	354	989	209	232
507.cactuBSSN_r	32	828	48.9	168	265	203	229	826	49.0	168	265	204	240	818	49.5	167	266	205	252
508.namd_r	32	613	49.6	124	267	202	245	613	49.6	122	271	200	239	593	51.3	124	267	209	245
510.parest_r	32	2402	34.9	522	174	218	259	2402	34.8	525	174	219	282	2403	34.8	524	174	218	259
511.povray_r	32	1177	63.5	242	335	206	263	1176	63.5	246	330	209	264	1178	63.4	246	330	209	264
519.lbm_r	32	1357	24.9	300	128	221	245	1349	25.0	301	127	223	246	1348	25.0	305	126	226	266
521.wrf_r	32	1271	56.4	278	281	219	275	1269	56.5	279	281	220	268	1246	57.5	278	282	223	278
526.blender_r	32	968	50.4	183	289	189	236	967	50.4	182	291	188	236	968	50.4	182	290	188	230
527.cam4_r	32	996	56.2	224	272	225	297	980	57.1	226	269	231	292	979	57.2	229	266	234	293
538.imagick_r	32	973	81.8	199	433	204	284	972	81.9	198	436	203	284	976	81.5	198	435	203	284
544.nab_r	32	844	63.8	160	365	190	207	819	65.7	158	369	193	205	819	65.8	159	367	194	208
549.fotonik3d_r	32	2548	48.9	493	282	194	225	2548	48.9	495	281	194	216	2541	49.1	494	281	194	221
554.roms_r	32	1888	26.9	428	131	227	269	1882	27.0	424	132	225	267	1883	27.0	430	130	229	284

SPECrate®2017_fp_peak = **53.5**

SPECrate®2017_fp_energy_peak = **280**

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"



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General Notes

507.cactuBSSN_r (peak): "snprintf" src.alt was used.

507.cactuBSSN_r (base): "snprintf" src.alt was used.

jemalloc is a general purpose malloc(3) implementation that emphasizes fragmentation avoidance and scalable concurrency support. sources available from <https://github.com/facebook/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/cpu2017/bin/sysinfo
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
running on emag Mon Mar  2 10:48:43 2026
```

SUT (System Under Test) info as seen by some common utilities.

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1. `uname -a`
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`
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`

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Platform Notes (Continued)

21. BIOS

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

```
2. w
10:48:43 up 73 days, 11:13, 2 users, load average: 1.14, 6.55, 11.89
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/gcc.2024-08-14.xml --reportable -c emag-03-gcc15 --tune=base,peak -n 3 -C 32 fprate
runcpu --flagsurl $SPEC/gcc.2024-08-14.xml --reportable --configfile emag-03-gcc15 --tune base,peak
--iterations 3 --copies 32 --runmode rate --tune base:peak --size refrate fprate --nopreenv --note-preenv
--logfile $SPEC/tmp/CPU2017.096/templogs/preenv.fprate.096.0.log --lognum 096.0 --from_runcpu 2
specperl $SPEC/bin/sysinfo -f
$SPEC = /home/mjm/cpu2017
```

```
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:
```

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Platform Notes (Continued)

```

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
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      1M      8 Data          1
L1i   32K      1M      1M      8 Instruction   1
L2    256K     4M      32M     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: 80737 MB
node distances:
node 0
0: 10

```

```

-----
9. /proc/meminfo
MemTotal:      133533376 kB

```

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Platform Notes (Continued)

10. who -r
run-level 5 Dec 18 23:35

11. Systemd service manager version: systemd 255 (255.4-lubuntu8.8)
Default Target Status
graphical running

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-sysextr systemd-time-wait-sync
generated openipmi perlbal
indirect serial-getty@ systemd-sysupdate systemd-sysupdate-reboot uidd
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

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Platform Notes (Continued)

vm.watermark_scale_factor 10
vm.zone_reclaim_mode 0

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/cpu2017
Filesystem Type Size Used Avail Use% Mounted on
/dev/sda2 ext4 439G 307G 110G 74% /

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

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



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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 | 519.lbm_r(base, peak) 538.imagick_r(base, peak) 544.nab_r(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++ | 508.namd_r(base, peak) 510.parest_r(base, peak)
-----

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

=====
C++, C | 511.povray_r(base, peak) 526.blender_r(base, peak)
-----

g++ (GCC) 15.2.0
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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++, C, Fortran | 507.cactuBSSN_r(base, peak)
-----

g++ (GCC) 15.2.0
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GNU Fortran (GCC) 15.2.0
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-----

=====
Fortran | 503.bwaves_r(base, peak) 549.fotonik3d_r(base, peak) 554.roms_r(base, peak)
-----

```

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SPEC CPU®2017 Floating Point Rate Result

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

SPECrate®2017_fp_base = 49.2
SPECrate®2017_fp_energy_base = 261
SPECrate®2017_fp_peak = 53.5
SPECrate®2017_fp_energy_peak = 280

CPU2017 License: 6412
Test Sponsor: Ampere Computing, Inc.
Tested by: Ampere Computing, Inc.

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

Compiler Version Notes (Continued)

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Fortran, C | 521.wrf_r(base, peak) 527.cam4_r(base, peak)

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Base Compiler Invocation

C benchmarks:

gcc

C++ benchmarks:

g++

Fortran benchmarks:

gfortran

Benchmarks using both Fortran and C:

gfortran gcc

Benchmarks using both C and C++:

g++ gcc

Benchmarks using Fortran, C, and C++:

g++ gcc gfortran

Base Portability Flags

503.bwaves_r: -DSPEC_LP64
507.cactuBSSN_r: -DSPEC_LP64
508.namd_r: -DSPEC_LP64

(Continued on next page)



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Base Portability Flags (Continued)

510.parest_r: -DSPEC_LP64
511.povray_r: -DSPEC_LP64
519.lbm_r: -DSPEC_LP64
521.wrf_r: -DSPEC_CASE_FLAG -fconvert=big-endian -DSPEC_LP64
526.blender_r: -funsigned-char -DSPEC_LINUX -DSPEC_LP64
527.cam4_r: -DSPEC_CASE_FLAG -DSPEC_LP64
538.imagick_r: -DSPEC_LP64
544.nab_r: -DSPEC_LP64
549.fotonik3d_r: -DSPEC_LP64
554.roms_r: -DSPEC_LP64

Base Optimization Flags

C benchmarks:

-mabi=lp64 -std=c99 -g -O3 -mcpu=native -flto=16
-fno-strict-aliasing -L/home/mjm/jemalloc/lib -ljemalloc

C++ benchmarks:

-mabi=lp64 -std=c++03 -g -O3 -mcpu=native -flto=16
-L/home/mjm/jemalloc/lib -ljemalloc

Fortran benchmarks:

-mabi=lp64 -g -O3 -mcpu=native -flto=16 -L/home/mjm/jemalloc/lib
-ljemalloc

Benchmarks using both Fortran and C:

-mabi=lp64 -std=c99 -g -O3 -mcpu=native -flto=16
-fno-strict-aliasing -L/home/mjm/jemalloc/lib -ljemalloc

Benchmarks using both C and C++:

-mabi=lp64 -std=c++03 -std=c99 -g -O3 -mcpu=native -flto=16
-fno-strict-aliasing -L/home/mjm/jemalloc/lib -ljemalloc

Benchmarks using Fortran, C, and C++:

-mabi=lp64 -std=c++03 -std=c99 -g -O3 -mcpu=native -flto=16
-fno-strict-aliasing -L/home/mjm/jemalloc/lib -ljemalloc



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Base Other Flags

C benchmarks:

-Wno-error=implicit-int

Fortran benchmarks:

-fallow-argument-mismatch

Benchmarks using both Fortran and C:

-Wno-error=implicit-int -fallow-argument-mismatch

Benchmarks using both C and C++:

-Wno-error=implicit-int

Benchmarks using Fortran, C, and C++:

-Wno-error=implicit-int -fallow-argument-mismatch

Peak Compiler Invocation

C benchmarks:

gcc

C++ benchmarks:

g++

Fortran benchmarks:

gfortran

Benchmarks using both Fortran and C:

gfortran gcc

Benchmarks using both C and C++:

g++ gcc

Benchmarks using Fortran, C, and C++:

g++ gcc gfortran

Peak Portability Flags

Same as Base Portability Flags



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Software Availability: Aug-2025

Peak Optimization Flags

C benchmarks:

```
-mabi=lp64 -std=c99 -fprofile-generate -fprofile-use -g -Ofast  
-mcpu=native -flto=16 -L/home/mjm/jemalloc/lib -ljemalloc
```

C++ benchmarks:

```
508.namd_r: -mabi=lp64 -std=c++03 -fprofile-generate -fprofile-use  
-g -Ofast -mcpu=native -flto=16 -L/home/mjm/jemalloc/lib  
-ljemalloc
```

510.parest_r: basepeak = yes

Fortran benchmarks:

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

Benchmarks using both Fortran and C:

```
521.wrf_r: -mabi=lp64 -std=c99 -fprofile-generate -fprofile-use -g  
-Ofast -mcpu=native -flto=16 -L/home/mjm/jemalloc/lib  
-ljemalloc
```

```
527.cam4_r: -mabi=lp64 -std=c99 -fprofile-generate -fprofile-use -g  
-Ofast -mcpu=native -flto=16 -fno-strict-aliasing  
-L/home/mjm/jemalloc/lib -ljemalloc
```

Benchmarks using both C and C++:

511.povray_r: basepeak = yes

526.blender_r: basepeak = yes

Benchmarks using Fortran, C, and C++:

```
-mabi=lp64 -std=c++03 -std=c99 -fprofile-generate -fprofile-use -g  
-Ofast -mcpu=native -flto=16 -L/home/mjm/jemalloc/lib -ljemalloc
```

Peak Other Flags

Benchmarks using both Fortran and C:

```
521.wrf_r: -fallow-argument-mismatch
```

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

Peak Other Flags (Continued)

527.cam4_r: -Wno-error=implicit-int -fallow-argument-mismatch

Benchmarks using both C and C++:
-Wno-error=implicit-int

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

<http://www.spec.org/cpu2017/flags/gcc.2026-04-28.00.html>

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

<http://www.spec.org/cpu2017/flags/gcc.2026-04-28.00.xml>

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