SPEC CPU®2026 Floating Point Rate Result

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IEIT Systems Co., Ltd.

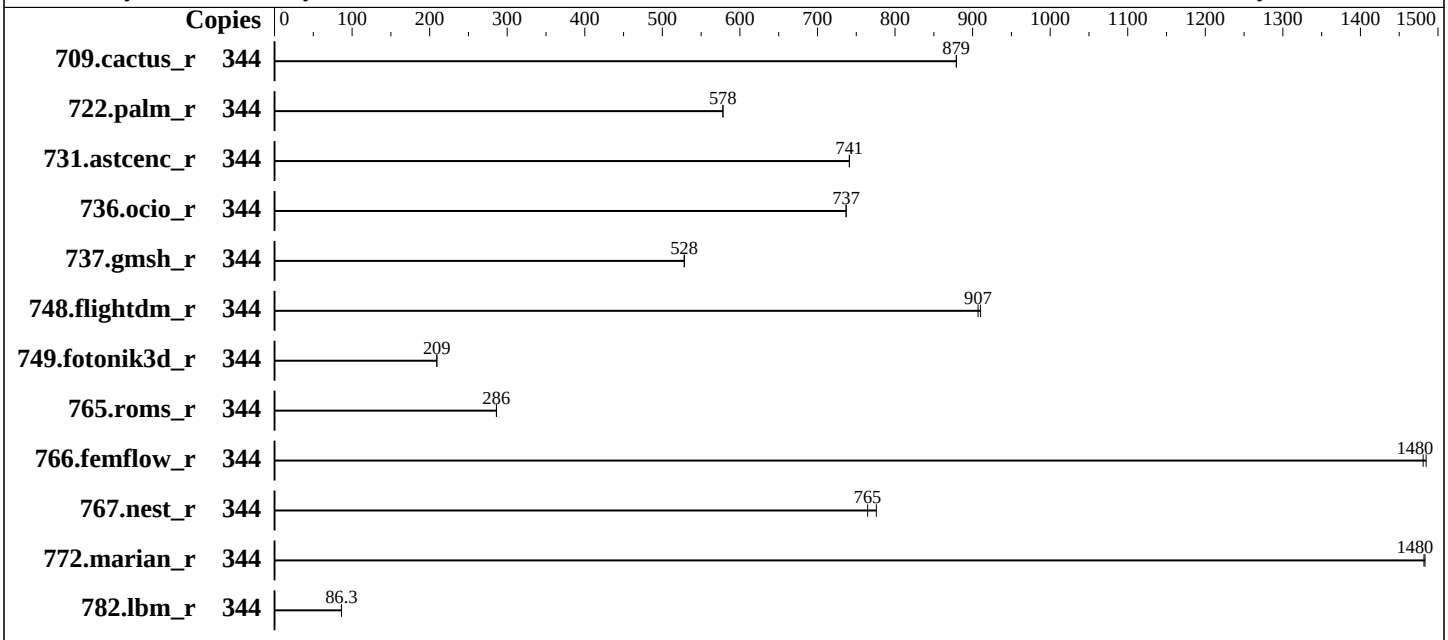
meta brain NF5280G8 (Intel Xeon 6787P)

SPECrate®2026_fp_base = 569

SPECrate®2026_fp_peak = Not Run

CPU2026 License: 3358
Test Sponsor: IEIT Systems Co., Ltd.
Tested by: IEIT Systems Co., Ltd.

Test Date: Apr-2026
Hardware Availability: Apr-2025
Software Availability: Nov-2025



Hardware

CPU Name:	Intel Xeon 6787P
Max MHz:	3800
Nominal:	2000
Enabled:	172 cores, 2 chips, 2 threads/core
Orderable:	1,2 chips
Cache L1:	64 KB I + 48 KB D on chip per core
L2:	2 MB I+D on chip per core
L3:	336 MB I+D on chip per chip
Other:	None
Memory:	1 TB (16 x 64 GB 2Rx4 PC5-88/64B-H, running at 8000)
Storage:	1 x 1.92 TB NVME SSD
Cooling:	Air
Other:	None

Software

OS:	Red Hat Enterprise Linux 9.7 (Plow) 5.14.0-611.5.1.el9_7.x86_64
Compiler:	C/C++/Fortran: Version 15.1.1 of GCC, the GNU Compiler Collection
Compiler Category:	Community
Firmware:	Version 04.01.00 released Dec-2025
File System:	xfs
System State:	Run level 3 (multi-user)
Base Pointers:	64-bit
Peak Pointers:	Not Applicable
Other:	None
Power Management:	BIOS and OS set to prefer performance at the cost of additional power usage.

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Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
709.cactus_r	344	**336**	**879**	336	879									
722.palm_r	344	785	578	**786**	**578**									
731.astcenc_r	344	390	741	**390**	**741**									
736.ocio_r	344	**408**	**737**	408	737									
737.gmsh_r	344	**299**	**528**	299	529									
748.flightdm_r	344	**272**	**907**	271	910									
749.fotonik3d_r	344	1900	209	**1901**	**209**									
765.roms_r	344	1894	286	**1894**	**286**									
766.femflow_r	344	**341**	**1480**	340	1480									
767.nest_r	344	**357**	**765**	352	776									
772.marian_r	344	366	1480	**367**	**1480**									
782.lbm_r	344	2283	86.3	**2284**	**86.3**									

SPECrate®2026_fp_base = 569

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

Submit Notes

```
The numactl mechanism was used to bind copies to processors. The config file option 'submit'
was used to generate numactl commands to bind each copy to a specific processor.
For details, please see the config file.
```

Operating System Notes

```
Stack size set to unlimited using "ulimit -s unlimited"
```

Environment Variables Notes

```
Environment variables set by runcpu before the start of the run:
LD_LIBRARY_PATH =
     "/opt/rh/gcc-toolset-15/root/usr/lib64/:/opt/rh/gcc-toolset-15/root/usr/
     lib/:/lib64"
```

General Notes

```
Prior to runcpu invocation
Filesystem page cache synced and cleared with:
sync; echo 3>       /proc/sys/vm/drop_caches

NA: The test sponsor attests, as of date of publication, that CVE-2017-5754 (Meltdown)
```

(Continued on next page)

General Notes (Continued)

```
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)
is mitigated in the system as tested and documented.
```

Platform Notes

```
BIOS configuration:
ENERGY_PERF_BIAS_CFG mode set to Performance
SNC set to Enabled
VT Support set to Disable
Hardware P-states set to Disable

Sysinfo program /home/CPU2026/bin/sysinfo
Rev: 779ab21020787073335a329f3a45e2cd
running on localhost Wed Aug  5 13:42:42 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 252 (252-55.el9)
12. Services, from systemctl list-unit-files
13. Linux kernel boot-time arguments, from /proc/cmdline
14. cpupower frequency-info
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
```

(Continued on next page)

Platform Notes (Continued)

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

------------------------------------------------------------
1. uname -srvm
  Linux 5.14.0-611.5.1.el9_7.x86_64 #1 SMP PREEMPT_DYNAMIC Fri Oct 17 14:16:35 EDT 2025 x86_64

------------------------------------------------------------
2. w
   13:42:42 up  3:29,  1 user,  load average: 137.76, 281.95, 312.53
  USER     TTY        LOGIN@   IDLE   JCPU   PCPU WHAT
  root     tty1      10:21    3:14m  1.37s  0.00s sh run.sh

------------------------------------------------------------
3. Username
  From environment variable $USER:  root

------------------------------------------------------------
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) 4125704
  max locked memory           (kbytes, -l) 64
  max memory size             (kbytes, -m) unlimited
  open files                          (-n) 1024
  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) 4125704
  virtual memory              (kbytes, -v) unlimited
  file locks                          (-x) unlimited

------------------------------------------------------------
5. sysinfo process ancestry
 /usr/lib/systemd/systemd --switched-root --system --deserialize 31
 login -- root
 -bash
 sh run.sh
 runcpu --config lgh.cfg --reportable --iterations=2 --size=all --tune=base fprate
 runcpu --configfile lgh.cfg --reportable --iterations 2 --size all --tune base --nopower --runmode rate
   --tune base --size test:train:refrate fprate --nopreenv --note-preenv --logfile
   $SPEC/tmp/CPU2026.002/templogs/preenv.fprate.002.0.log --lognum 002.0 --from_runcpu 2
 specperl $SPEC/bin/sysinfo
```

(Continued on next page)

Platform Notes (Continued)

```
$SPEC = /home/CPU2026

------------------------------------------------------------
6. /proc/cpuinfo
    model name      : Intel(R) Xeon(R) 6787P
    vendor_id       : GenuineIntel
    cpu family      : 6
    model           : 173
    stepping        : 1
    microcode       : 0x10003d0
    bugs           : spectre_v1 spectre_v2 spec_store_bypass swapgs bhi spectre_v2_user
    cpu cores       : 86
    siblings        : 172
    2 physical ids (chips)
    344 processors (hardware threads)
    physical id 0: core ids 0-42,64-106
    physical id 1: core ids 0-42,64-106
    physical id 0: apicids 0-85,128-213
    physical id 1: apicids 256-341,384-469
  Caution: /proc/cpuinfo data regarding chips, cores, and threads is not necessarily reliable, especially for
   virtualized systems.  Use the above data carefully.

------------------------------------------------------------
7. lscpu

From lscpu from util-linux 2.37.4:
  Architecture:                            x86_64
  CPU op-mode(s):                          32-bit, 64-bit
  Address sizes:                           52 bits physical, 57 bits virtual
  Byte Order:                              Little Endian
  CPU(s):                                  344
  On-line CPU(s) list:                     0-343
  Vendor ID:                               GenuineIntel
  BIOS Vendor ID:                          Intel(R) Corporation
  Model name:                              Intel(R) Xeon(R) 6787P
  BIOS Model name:                         Intel(R) Xeon(R) 6787P
  CPU family:                              6
  Model:                                   173
  Thread(s) per core:                      2
  Core(s) per socket:                      86
  Socket(s):                               2
  Stepping:                                1
  Frequency boost:                         enabled
  CPU(s) scaling MHz:                      100%
  CPU max MHz:                             2001.0000
  CPU min MHz:                             800.0000
  BogoMIPS:                                4000.00
```

(Continued on next page)

Platform Notes (Continued)

```
  Flags:                                fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov pat
                                        pse36 clflush dts acpi mmx fxsr sse sse2 ss ht tm pbe syscall nx
                                        pdpe1gb rdtscp lm constant_tsc art arch_perfmon pebs bts rep_good
                                        nopl xtopology nonstop_tsc cpuid aperfmperf tsc_known_freq pni
                                        pclmulqdq dtes64 ds_cpl smx est tm2 ssse3 sdbg fma cx16 xtpr pdcm
                                        pcid dca sse4_1 sse4_2 x2apic movbe popcnt tsc_deadline_timer aes
                                        xsave avx f16c rdrand lahf_lm abm 3dnowprefetch cpuid_fault epb
                                        cat_l3 cat_l2 cdp_l3 intel_ppin cdp_l2 ssbd mba ibrs ibpb stibp
                                        ibrs_enhanced fsgsbase tsc_adjust bmi1 avx2 smep bmi2 erms invpcid
                                        cqm rdt_a avx512f avx512dq rdseed adx smap avx512ifma clflushopt
                                        clwb intel_pt avx512cd sha_ni avx512bw avx512vl xsaveopt xsavec
                                        xgetbv1 xsaves cqm_llc cqm_occup_llc cqm_mbm_total cqm_mbm_local
                                        split_lock_detect user_shstk avx_vnni avx512_bf16 wbnoinvd dtherm
                                        ida arat pln pts avx512vbmi umip pku ospke waitpkg avx512_vbmi2
                                        gfni vaes vpclmulqdq avx512_vnni avx512_bitalg tme
                                        avx512_vpopcntdq la57 rdpid bus_lock_detect cldemote movdiri
                                        movdir64b enqcmd fsrm md_clear serialize tsxldtrk pconfig arch_lbr
                                        ibt amx_bf16 avx512_fp16 amx_tile amx_int8 flush_l1d
                                        arch_capabilities
  L1d cache:                            8.1 MiB (172 instances)
  L1i cache:                            10.8 MiB (172 instances)
  L2 cache:                             344 MiB (172 instances)
  L3 cache:                             672 MiB (2 instances)
  NUMA node(s):                         4
  NUMA node0 CPU(s):                    0-42,172-214
  NUMA node1 CPU(s):                    43-85,215-257
  NUMA node2 CPU(s):                    86-128,258-300
  NUMA node3 CPU(s):                    129-171,301-343
  Vulnerability Gather data sampling:   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 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; usercopy/swapgs barriers and __user pointer
                                        sanitization
  Vulnerability Spectre v2:             Mitigation; Enhanced / Automatic IBRS; IBPB conditional;
                                        PBRSB-eIBRS Not affected; BHI BHI_DIS_S
  Vulnerability Srbds:                  Not affected
  Vulnerability Tsa:                    Not affected
  Vulnerability Tsx async abort:        Not affected
```

(Continued on next page)

Platform Notes (Continued)

```
From lscpu --cache:
     NAME ONE-SIZE ALL-SIZE WAYS TYPE        LEVEL   SETS PHY-LINE COHERENCY-SIZE
     L1d       48K     8.1M   12 Data            1     64        1             64
     L1i       64K    10.8M   16 Instruction     1     64        1             64
     L2         2M     344M   16 Unified         2   2048        1             64
     L3       336M     672M   16 Unified         3 344064        1             64

------------------------------------------------------------
8. numactl --hardware
NOTE: a numactl 'node' might or might not correspond to a physical chip.
  available: 4 nodes (0-3)
  node 0 cpus: 0-42,172-214
  node 0 size: 257471 MB
  node 0 free: 229689 MB
  node 1 cpus: 43-85,215-257
  node 1 size: 258026 MB
  node 1 free: 238366 MB
  node 2 cpus: 86-128,258-300
  node 2 size: 257980 MB
  node 2 free: 237844 MB
  node 3 cpus: 129-171,301-343
  node 3 size: 257996 MB
  node 3 free: 234796 MB
  node distances:
  node     0    1    2    3
     0:   10   12   21   21
     1:   12   10   21   21
     2:   21   21   10   12
     3:   21   21   12   10

------------------------------------------------------------
9. /proc/meminfo
   MemTotal:       1056230412 kB

------------------------------------------------------------
10. who -r
  run-level 3 Aug 5 10:13

------------------------------------------------------------
11. Systemd service manager version: systemd 252 (252-55.el9)
  Default Target  Status
  multi-user      running

------------------------------------------------------------
12. Services, from systemctl list-unit-files
  STATE            UNIT FILES
  enabled          NetworkManager NetworkManager-dispatcher NetworkManager-wait-online auditd crond
```

(Continued on next page)

Platform Notes (Continued)

```
                dbus-broker firewalld getty@ insights-client-boot irqbalance kdump low-memory-monitor
               lvm2-monitor mdmonitor microcode nis-domainname nvmefc-boot-connections rhsmcertd rsyslog
                   rtkit-daemon selinux-autorelabel-mark sshd sssd systemd-boot-update
                   systemd-network-generator systemd-pstore udisks2 upower
  enabled-runtime  systemd-remount-fs
  disabled         blk-availability canberra-system-bootup canberra-system-shutdown
                canberra-system-shutdown-reboot console-getty cpupower debug-shell dnf-system-upgrade
               kvm_stat lvm-devices-import man-db-restart-cache-update nftables nvmf-autoconnect pesign
                rdisc rhcd rhsm rhsm-facts rpmdb-rebuild selinux-check-proper-disable serial-getty@
                   sshd-keygen@ systemd-boot-check-no-failures systemd-sysext
  indirect        sssd-autofs sssd-kcm sssd-nss sssd-pac sssd-pam sssd-ssh sssd-sudo systemd-sysupdate
                   systemd-sysupdate-reboot

------------------------------------------------------------
13. Linux kernel boot-time arguments, from /proc/cmdline
  BOOT_IMAGE=(hd0,gpt2)/vmlinuz-5.14.0-611.5.1.el9_7.x86_64
  root=/dev/mapper/rhel-root
  ro
  resume=/dev/mapper/rhel-swap
  rd.lvm.lv=rhel/root
  rd.lvm.lv=rhel/swap

------------------------------------------------------------
14. cpupower frequency-info
  analyzing CPU 320:
    current policy: frequency should be within 800 MHz and 2.00 GHz.
                    The governor "performance" may decide which speed to use
                    within this range.
    boost state support:
      Supported: yes
      Active: yes

------------------------------------------------------------
15. sysctl
  kernel.numa_balancing               1
  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
```

(Continued on next page)

Platform Notes (Continued)

```
  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

------------------------------------------------------------
16. /sys/kernel/mm/transparent_hugepage
  defrag          always defer defer+madvise [madvise] never
  enabled         [always] madvise never
  hpage_pmd_size  2097152
  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             511
  max_ptes_shared           256
  max_ptes_swap              64
  pages_to_scan            4096
  scan_sleep_millisecs    10000

------------------------------------------------------------
18. OS release
  From /etc/*-release /etc/*-version
  os-release     Red Hat Enterprise Linux 9.7 (Plow)
  redhat-release Red Hat Enterprise Linux release 9.7 (Plow)
  system-release Red Hat Enterprise Linux release 9.7 (Plow)

------------------------------------------------------------
19. Disk information
SPEC is set to: /home/CPU2026
  Filesystem            Type  Size  Used Avail Use% Mounted on
  /dev/mapper/rhel-home xfs   856G  125G  732G  15% /home

------------------------------------------------------------
20. /sys/devices/virtual/dmi/id
    Vendor:         IEIT SYSTEMS
    Product:        NF5280-M8-A0-R0-00
    Product Family: Not specified
    Serial:         000000000

------------------------------------------------------------
21. dmidecode
  Additional information from dmidecode 3.6 follows.  WARNING: Use caution when you interpret this section.
```

(Continued on next page)

Platform Notes (Continued)

```
   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:
      4x Hynix HMCG98BDJHA380N 64 GB 2 rank 12800, configured at 8000
      12x Hynix HMCG98BDJHA383N 64 GB 2 rank 12800, configured at 8000


 ------------------------------------------------------------
 22. BIOS
 (This section combines info from /sys/devices and dmidecode.)
    BIOS Vendor:       American Megatrends International, LLC.
    BIOS Version:      04.01.00
    BIOS Date:         12/17/2025
```

Compiler Version Notes

```
==============================================================================
C       | 782.lbm_r(base)
------------------------------------------------------------------------------
gcc (GCC) 15.1.1 20250521 (Red Hat 15.1.1-2)
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++     | 731.astcenc_r(base) 736.ocio_r(base) 748.flightdm_r(base)
        | 766.femflow_r(base) 767.nest_r(base) 772.marian_r(base)
------------------------------------------------------------------------------
g++ (GCC) 15.1.1 20250521 (Red Hat 15.1.1-2)
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) 737.gmsh_r(base pass 0)
------------------------------------------------------------------------------
g++ (GCC) 15.1.1 20250521 (Red Hat 15.1.1-2)
Copyright (C) 2025 Free Software Foundation, Inc.
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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  | 709.cactus_r(base pass 0) 737.gmsh_r(base pass 0)
------------------------------------------------------------------------------
gcc (GCC) 15.1.1 20250521 (Red Hat 15.1.1-2)
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------------------------------------------------------------------------------

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C++, C  | 709.cactus_r(base pass 0) 737.gmsh_r(base pass 0)
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warranty; not even for MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.
------------------------------------------------------------------------------

==============================================================================
C++, C  | 709.cactus_r(base pass 0) 737.gmsh_r(base pass 0)
------------------------------------------------------------------------------
gcc (GCC) 15.1.1 20250521 (Red Hat 15.1.1-2)
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warranty; not even for MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.
------------------------------------------------------------------------------

==============================================================================
Fortran | 722.palm_r(base) 749.fotonik3d_r(base) 765.roms_r(base)
------------------------------------------------------------------------------
GNU Fortran (GCC) 15.1.1 20250521 (Red Hat 15.1.1-2)
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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

(Continued on next page)

Base Compiler Invocation (Continued)

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

Base Optimization Flags

C benchmarks:
-m64 -std=c18 -g -O3 -march=native

C++ benchmarks:

731.astcenc_r: -m64 -std=c++17 -g -O3 -march=native

736.ocio_r: Same as 731.astcenc_r

748.flightdm_r: Same as 731.astcenc_r

766.femflow_r: -m64 -std=c++17 -g -O3 -march=native -pthread

767.nest_r: Same as 731.astcenc_r

772.marian_r: Same as 766.femflow_r

Fortran benchmarks:
-m64 -std=f2018 -g -O3 -march=native -fallow-argument-mismatch

Benchmarks using both C and C++:
-m64 -std=c++17 -std=c18 -g -O3 -march=native

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/IEIT-Platform-Settings-intel-V2.0.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/IEIT-Platform-Settings-intel-V2.0.xml

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

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