SPEC CPU®2026 Floating Point Rate Result

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Fsas Technologies Inc.

(Test Sponsor: Fujitsu)

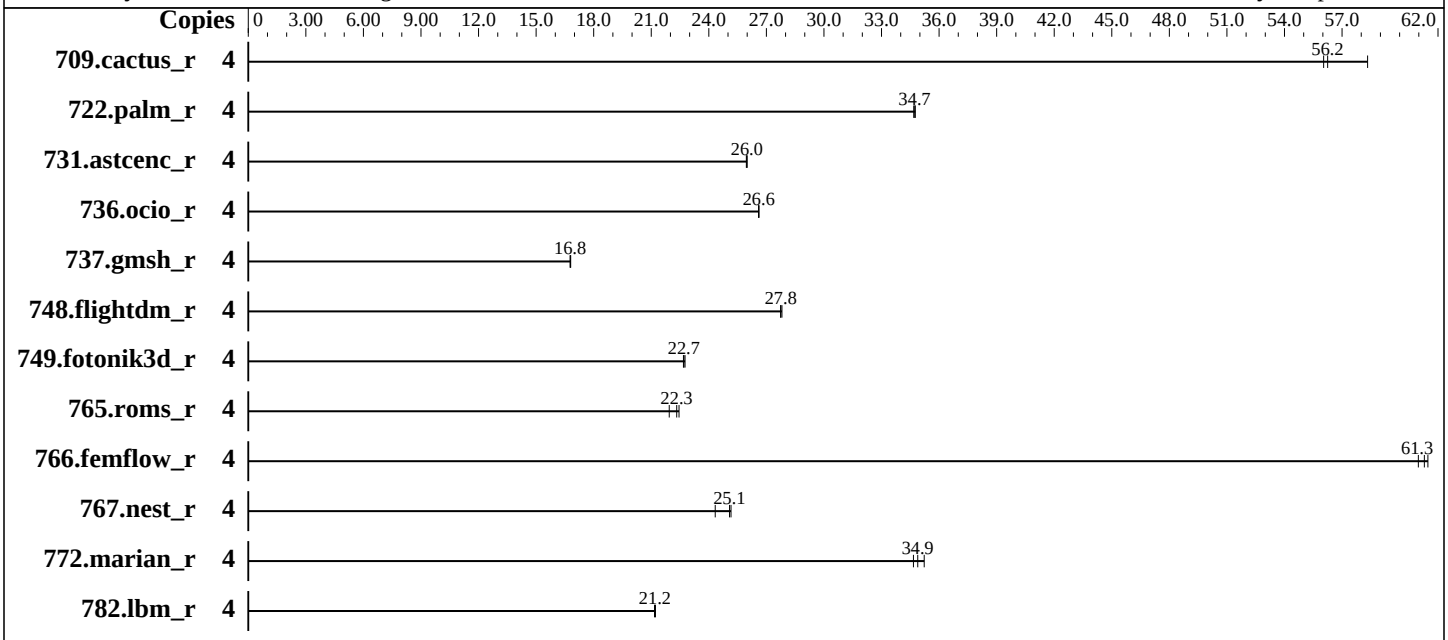
PRIMERGY RX1330 M6,
Intel Xeon 6315P, 2.8 GHz

SPECrate®2026_fp_base = 29.1

SPECrate®2026_fp_peak = Not Run

CPU2026 License: 19
Test Sponsor: Fujitsu
Tested by: Fsas Technologies Inc.

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



Hardware

CPU Name:	Xeon 6315P
Max MHz:	4700
Nominal:	2800
Enabled:	4 cores, 1 chip
Orderable:	1 chip
Cache L1:	32 KB I + 48 KB D on chip per core
L2:	2 MB I+D on chip per core
L3:	12 MB I+D on chip per chip
Other:	None
Memory:	64 GB (2 x 32 GB 2Rx8 PC5-4800B-E, running at 4400)
Storage:	1 x SATA M.2 SSD, 960 GB
Cooling:	Air
Other:	None

Software

OS:	SUSE Linux Enterprise Server 15 SP6 6.4.0-150600.21-default
Compiler:	C/C++: Version 2026.0 of Intel oneAPI DPC++/C++ Compiler for Linux; Fortran: Version 2026.0 of Intel Fortran Compiler for Linux
Compiler Category:	Vendor
Firmware:	Fujitsu BIOS Version V5.0.0.32 R2.6.0 for D4133-A1x. Released Jun-2026
File System:	xfs
System State:	Run level 3 (multi-user)
Base Pointers:	64-bit
Peak Pointers:	Not Applicable
Other:	jemalloc memory allocator v5.3
Power Management:	BIOS 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	4	58.8	58.3	61.2	56.0	**61.0**	**56.2**							
722.palm_r	4	**152**	**34.7**	152	34.8	152	34.7							
731.astcenc_r	4	129	26.0	**129**	**26.0**	129	26.0							
736.ocio_r	4	**132**	**26.6**	132	26.6	132	26.6							
737.gmsh_r	4	**109**	**16.8**	109	16.8	109	16.8							
748.flightdm_r	4	103	27.8	103	27.7	**103**	**27.8**							
749.fotonik3d_r	4	**204**	**22.7**	204	22.7	203	22.8							
765.roms_r	4	**282**	**22.3**	287	21.9	281	22.4							
766.femflow_r	4	95.5	61.5	96.2	61.0	**95.7**	**61.3**							
767.nest_r	4	126	25.2	**126**	**25.1**	130	24.3							
772.marian_r	4	182	34.7	**181**	**34.9**	179	35.2							
782.lbm_r	4	108	21.2	108	21.2	**108**	**21.2**							

SPECrate®2026_fp_base = 29.1

SPECrate®2026_fp_peak = Not Run

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

Submit Notes

```
The taskset mechanism was used to bind copies to processors. The config file option 'submit'
was used to generate taskset 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 = "/home/benchmark/cpu2026/lib"
MALLOC_CONF = "retain:true"
```

General Notes

```
Binaries compiled on a system with 2x Intel Xeon Platinum 8280M CPU + 384GB RAM
memory using CentOS Stream 9.
Transparent Huge Pages enabled by default
Prior to runcpu invocation
Filesystem page cache synced and cleared with:
sync; echo 3>       /proc/sys/vm/drop_caches
```

(Continued on next page)

General Notes (Continued)

```
jemalloc, a general purpose malloc implementation
built with the CentOS Stream 9, and the system compiler gcc 11.5.0
sources available from jemalloc.net or https://github.com/jemalloc/jemalloc/releases
```

Platform Notes

```
BIOS Settings:
Fan Control = Full
Total Memory Encryption = Disabled

Sysinfo program /home/benchmark/cpu2026/bin/sysinfo
Rev: 779ab21020787073335a329f3a45e2cd
running on localhost Thu Jun 11 11:58:57 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 254 (254.10+suse.84.ge8d77af424)
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
------------------------------------------------------------

------------------------------------------------------------
1. uname -srvm
  Linux 6.4.0-150600.21-default #1 SMP PREEMPT_DYNAMIC Thu May 16 11:09:22 UTC 2024 (36c1e09) x86_64
```

(Continued on next page)

Platform Notes (Continued)

```
------------------------------------------------------------
2. w
   11:58:57 up 22:33,  1 user,  load average: 1.15, 3.08, 3.68
  USER     TTY      FROM             LOGIN@   IDLE   JCPU   PCPU WHAT
  root     tty1     -                Wed13   22:24m  1.37s  0.13s -bash

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

------------------------------------------------------------
4. ulimit -a
  core file size          (blocks, -c) unlimited
  data seg size           (kbytes, -d) unlimited
  scheduling priority             (-e) 0
  file size               (blocks, -f) unlimited
  pending signals                 (-i) 254408
  max locked memory       (kbytes, -l) 8192
  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) 254408
  virtual memory          (kbytes, -v) unlimited
  file locks                      (-x) unlimited

------------------------------------------------------------
5. sysinfo process ancestry
 /usr/lib/systemd/systemd --switched-root --system --deserialize=42
 login -- root
 -bash
 -bash
 runcpu --nobuild --action validate --define default-platform-flags --copies 4 -c
   ic2026.0-core-avx2-cpu2026-1.0.1-rate-20260429.cfg --define cores=4 --define physicalfirst --define
    no-numa --tune base -o all --define drop_caches -n 3 fprate
 runcpu --nobuild --action validate --define default-platform-flags --copies 4 --configfile
   ic2026.0-core-avx2-cpu2026-1.0.1-rate-20260429.cfg --define cores=4 --define physicalfirst --define
   no-numa --tune base --output_format all --define drop_caches --iterations 3 --nopower --runmode rate
    --tune base --size refrate fprate --nopreenv --note-preenv --logfile
    $SPEC/tmp/CPU2026.001/templogs/preenv.fprate.001.0.log --lognum 001.0 --from_runcpu 2
 specperl $SPEC/bin/sysinfo
$SPEC = /home/benchmark/cpu2026
```

(Continued on next page)

Platform Notes (Continued)

```
------------------------------------------------------------
6. /proc/cpuinfo
    model name      : Intel(R) Xeon(R) 6315P
    vendor_id       : GenuineIntel
    cpu family      : 6
    model           : 183
    stepping        : 1
    microcode       : 0x133
    bugs            : spectre_v1 spectre_v2 spec_store_bypass swapgs eibrs_pbrsb bhi
    cpu cores       : 4
    siblings        : 4
    1 physical ids (chips)
    4 processors (hardware threads)
    physical id 0: core ids 0-3
    physical id 0: apicids 0,2,4,6
  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 2.39.3:
  Architecture:                         x86_64
  CPU op-mode(s):                       32-bit, 64-bit
  Address sizes:                        46 bits physical, 48 bits virtual
  Byte Order:                           Little Endian
  CPU(s):                               4
  On-line CPU(s) list:                  0-3
  Vendor ID:                            GenuineIntel
  BIOS Vendor ID:                       Intel(R) Corporation
  Model name:                           Intel(R) Xeon(R) 6315P
  BIOS Model name:                      Intel(R) Xeon(R) 6315P   CPU @ 4.4GHz
  BIOS CPU family:                      179
  CPU family:                           6
  Model:                                183
  Thread(s) per core:                   1
  Core(s) per socket:                   4
  Socket(s):                            1
  Stepping:                             1
  CPU(s) scaling MHz:                   45%
  CPU max MHz:                          4700.0000
  CPU min MHz:                          800.0000
  BogoMIPS:                             5606.40
  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
```

(Continued on next page)

Platform Notes (Continued)

```
                                pclmulqdq dtes64 monitor ds_cpl vmx smx est tm2 ssse3 sdbg fma cx16
                                 xtpr pdcm sse4_1 sse4_2 x2apic movbe popcnt tsc_deadline_timer aes
                                xsave avx f16c rdrand lahf_lm abm 3dnowprefetch cpuid_fault epb ssbd
                               ibrs ibpb stibp ibrs_enhanced tpr_shadow flexpriority ept vpid ept_ad
                                fsgsbase tsc_adjust bmi1 avx2 smep bmi2 erms invpcid rdseed adx smap
                                  clflushopt clwb intel_pt sha_ni xsaveopt xsavec xgetbv1 xsaves
                                 split_lock_detect user_shstk avx_vnni dtherm ida arat pln pts hwp
                               hwp_notify hwp_act_window hwp_epp hwp_pkg_req hfi vnmi umip pku ospke
                                  waitpkg gfni vaes vpclmulqdq tme rdpid movdiri movdir64b fsrm
                                md_clear serialize pconfig arch_lbr ibt flush_l1d arch_capabilities
  Virtualization:                       VT-x
  L1d cache:                            192 KiB (4 instances)
  L1i cache:                            128 KiB (4 instances)
  L2 cache:                             8 MiB (4 instances)
  L3 cache:                             12 MiB (1 instance)
  NUMA node(s):                         1
  NUMA node0 CPU(s):                    0-3
  Vulnerability Gather data sampling:   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; RSB filling;
                                        PBRSB-eIBRS SW sequence; BHI BHI_DIS_S
  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       48K     192K   12 Data            1    64        1             64
     L1i       32K     128K    8 Instruction     1    64        1             64
     L2         2M       8M   16 Unified         2  2048        1             64
     L3        12M      12M    6 Unified         3 32768        1             64

------------------------------------------------------------
8. numactl --hardware
NOTE: a numactl 'node' might or might not correspond to a physical chip.
  available: 1 nodes (0)
  node 0 cpus: 0-3
  node 0 size: 63628 MB
  node 0 free: 62898 MB
```

(Continued on next page)

Platform Notes (Continued)

```
  node distances:
  node   0
    0:  10

------------------------------------------------------------
9. /proc/meminfo
   MemTotal:       65155344 kB

------------------------------------------------------------
10. who -r
  run-level 3 Jun 10 13:26

------------------------------------------------------------
11. Systemd service manager version: systemd 254 (254.10+suse.84.ge8d77af424)
  Default Target  Status
  multi-user      running

------------------------------------------------------------
12. Services, from systemctl list-unit-files
  STATE            UNIT FILES
  enabled         apparmor auditd cron getty@ irqbalance issue-generator kbdsettings lvm2-monitor postfix
                  purge-kernels rollback sep5 sshd systemd-pstore wicked wickedd-auto4 wickedd-dhcp4
                  wickedd-dhcp6 wickedd-nanny
  enabled-runtime  systemd-remount-fs
  disabled         YaST2-Firstboot YaST2-Second-Stage autofs autoyast-initscripts blk-availability
                  boot-sysctl ca-certificates chrony-wait chronyd console-getty cups cups-browsed
                 debug-shell display-manager ebtables exchange-bmc-os-info firewalld fsidd gpm grub2-once
                 haveged ipmi ipmievd issue-add-ssh-keys kdump kdump-early kdump-notify kexec-load klog
                lunmask man-db-create multipathd nfs nfs-blkmap nscd rpcbind rpmconfigcheck rsyncd rsyslog
                serial-getty@ smartd smartd_generate_opts snmpd snmptrapd systemd-boot-check-no-failures
                  systemd-confext systemd-network-generator systemd-sysext systemd-time-wait-sync
                  systemd-timesyncd vncserver@
  indirect         systemd-userdbd wickedd

------------------------------------------------------------
13. Linux kernel boot-time arguments, from /proc/cmdline
  BOOT_IMAGE=/boot/vmlinuz-6.4.0-150600.21-default
  root=UUID=69cd5337-d082-4cee-8e02-ec4054c30a5a
  splash=silent
  resume=/dev/disk/by-uuid/a5855c9d-a4a0-4b74-baec-bd075bde416b
  quiet
  security=apparmor
  crashkernel=347M,high
  crashkernel=72M,low
  mitigations=auto

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

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Platform Notes (Continued)

```
14. cpupower frequency-info
  analyzing CPU 3:
    current policy: frequency should be within 800 MHz and 4.70 GHz.
                    The governor "powersave" may decide which speed to use
                    within this range.
    boost state support:
      Supported: yes
      Active: yes

------------------------------------------------------------
15. sysctl
  kernel.numa_balancing              0
  kernel.randomize_va_space          2
  vm.compaction_proactiveness       20
  vm.dirty_background_bytes          0
  vm.dirty_background_ratio         10
  vm.dirty_bytes                     0
  vm.dirty_expire_centisecs       3000
  vm.dirty_ratio                    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

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

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Platform Notes (Continued)

```
------------------------------------------------------------
18. OS release
  From /etc/*-release /etc/*-version
  os-release SUSE Linux Enterprise Server 15 SP6

------------------------------------------------------------
19. Disk information
SPEC is set to: /home/benchmark/cpu2026
  Filesystem     Type  Size  Used Avail Use% Mounted on
  /dev/sda5      xfs   751G   71G  681G  10% /home

------------------------------------------------------------
20. /sys/devices/virtual/dmi/id
    Vendor:         FUJITSU
    Product:        PRIMERGY RX1330 M6
    Product Family: SERVER
    Serial:         xxxxxxxxxx

------------------------------------------------------------
21. dmidecode
  Additional information from dmidecode 3.4 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:
     2x Samsung M324R4GA3BB0-CQKOL 32 GB 2 rank 4800, configured at 4400


------------------------------------------------------------
22. BIOS
(This section combines info from /sys/devices and dmidecode.)
   BIOS Vendor:       FUJITSU // American Megatrends International, LLC.
   BIOS Version:      V5.0.0.32 R2.6.0 for D4133-A1x
   BIOS Date:         04/23/2026
   BIOS Revision:     2.6
```

Compiler Version Notes

```
==============================================================================
C       | 782.lbm_r(base)
------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,
  Version 2026.0.0 Build 20260331
Copyright (C) 1985-2026 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------
```

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Compiler Version Notes (Continued)

```
==============================================================================
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)
------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,
  Version 2026.0.0 Build 20260331
Copyright (C) 1985-2026 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------

==============================================================================
C++, C  | 709.cactus_r(base) 737.gmsh_r(base)
------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,
  Version 2026.0.0 Build 20260331
Copyright (C) 1985-2026 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------

==============================================================================
Fortran | 722.palm_r(base) 749.fotonik3d_r(base) 765.roms_r(base)
------------------------------------------------------------------------------
Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version
  2026.0.0 Build 20260331
Copyright (C) 1985-2026 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------
```

Base Compiler Invocation

C benchmarks:
icx

C++ benchmarks:
icpx

Fortran benchmarks:
ifx

Benchmarks using both C and C++:
icpx icx

Base Portability Flags

737.gmsh_r: -fno-associative-math

Base Optimization Flags

C benchmarks:
```
-m64 -std=c18 -Wl,-z,muldefs -Wl,-plugin-opt=-inline-threshold=1500
-xCORE-AVX2 -O3 -ffp-model=fast -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -L/usr/local/jemalloc-5.3.0/lib -ljemalloc
```

C++ benchmarks:
```
-m64 -std=c++17 -Wl,-z,muldefs -Wl,-plugin-opt=-inline-threshold=1500
-xCORE-AVX2 -O3 -ffp-model=fast -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -L/usr/local/jemalloc-5.3.0/lib -ljemalloc
```

Fortran benchmarks:
```
-m64 -stand f18 -Wl,-z,muldefs -Wl,-plugin-opt=-inline-threshold=1500
-xCORE-AVX2 -O3 -ffp-model=fast -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -nostandard-realloc-lhs -align array32byte
-auto -L/usr/local/jemalloc-5.3.0/lib -ljemalloc
```

Benchmarks using both C and C++:
```
-m64 -std=c++17 -std=c18 -Wl,-z,muldefs
-Wl,-plugin-opt=-inline-threshold=1500 -xCORE-AVX2 -O3 -ffp-model=fast
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-L/usr/local/jemalloc-5.3.0/lib -ljemalloc
```

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2026/results/flags/Intel-ic2026-official-linux64-v1.1.html
http://www.spec.org/cpu2026/results/flags/Fsas-Platform-Settings-V1.0-RPL-R-RevB.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2026/results/flags/Intel-ic2026-official-linux64-v1.1.xml
http://www.spec.org/cpu2026/results/flags/Fsas-Platform-Settings-V1.0-RPL-R-RevB.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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