



SPEC CPU®2026 Floating Point Rate Result

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IEIT Systems Co., Ltd.

SPECrate®2026_fp_base = 745

meta brain NF5180G8 (Intel Xeon 6787P)

SPECrate®2026_fp_peak = 761

CPU2026 License: 3358

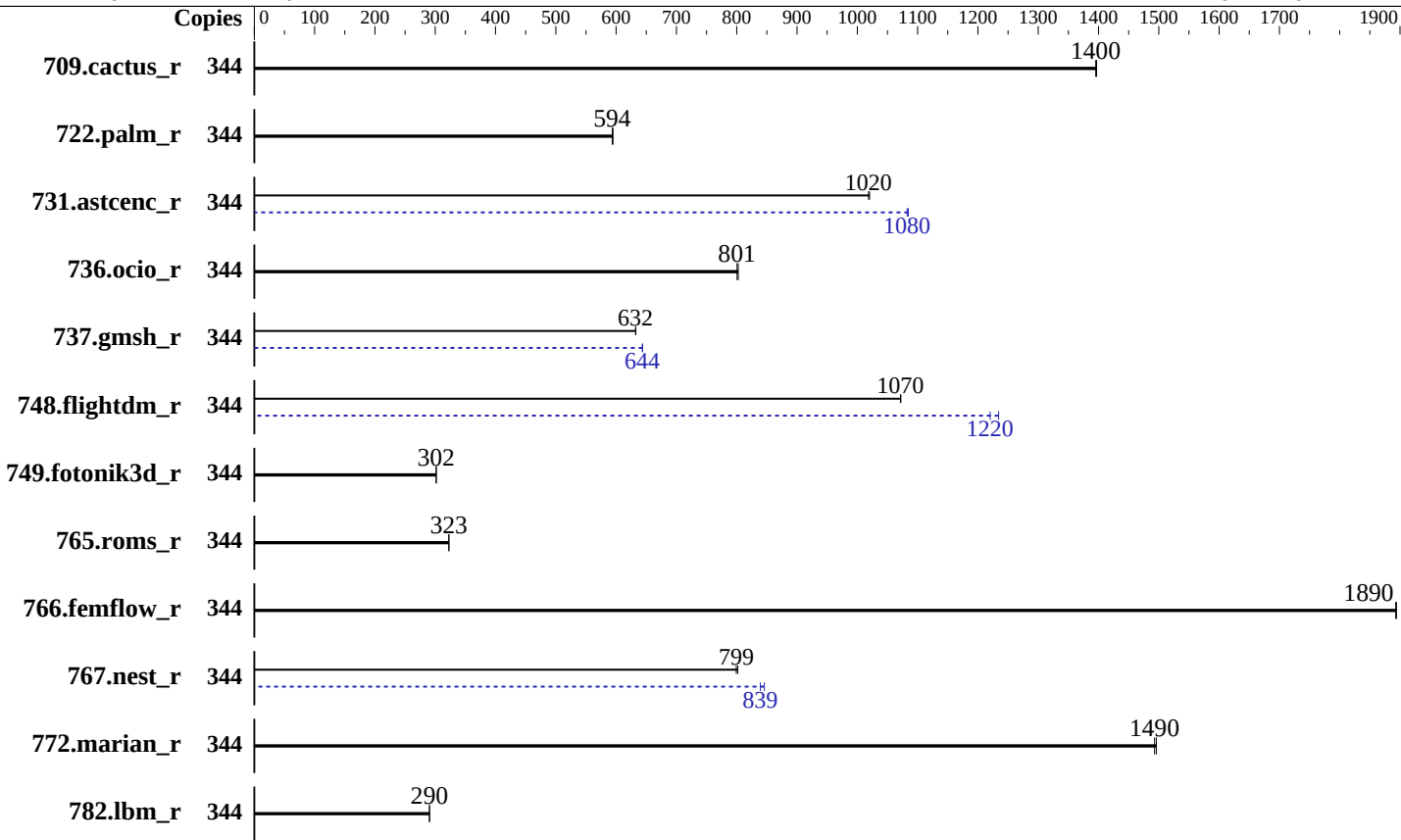
Test Sponsor: IEIT Systems Co., Ltd.

Tested by: IEIT Systems Co., Ltd.

Test Date: Jun-2026

Hardware Availability: Apr-2025

Software Availability: May-2026



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 TB NVME SSD
Cooling: Air
Other: None

Software

OS: SUSE Linux Enterprise Server 15 SP7 6.4.0-150700.51-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: Version 04.01.00 released Dec-2025
File System: xfs
System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: 64-bit
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	344	<u>212</u>	<u>1400</u>	211	1400			344	<u>212</u>	<u>1400</u>	211	1400		
722.palm_r	344	<u>765</u>	<u>594</u>	763	595			344	<u>765</u>	<u>594</u>	763	595		
731.astcenc_r	344	<u>284</u>	<u>1020</u>	283	1020			344	<u>267</u>	<u>1080</u>	266	1080		
736.ocio_r	344	<u>376</u>	<u>801</u>	375	803			344	<u>376</u>	<u>801</u>	375	803		
737.gmsh_r	344	<u>250</u>	<u>632</u>	250	633			344	<u>245</u>	<u>644</u>	245	644		
748.flightdm_r	344	<u>230</u>	<u>1070</u>	230	1070			344	200	1230	<u>202</u>	<u>1220</u>		
749.fotonik3d_r	344	1318	302	<u>1318</u>	<u>302</u>			344	1318	302	<u>1318</u>	<u>302</u>		
765.roms_r	344	1679	323	<u>1679</u>	<u>323</u>			344	1679	323	<u>1679</u>	<u>323</u>		
766.femflow_r	344	<u>267</u>	<u>1890</u>	266	1890			344	<u>267</u>	<u>1890</u>	266	1890		
767.nest_r	344	340	802	<u>341</u>	<u>799</u>			344	<u>325</u>	<u>839</u>	323	846		
772.marian_r	344	363	1500	<u>364</u>	<u>1490</u>			344	363	1500	<u>364</u>	<u>1490</u>		
782.lbm_r	344	678	291	<u>679</u>	<u>290</u>			344	678	291	<u>679</u>	<u>290</u>		

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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 = "/home/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

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General Notes (Continued)

runcpu command invoked through numactl i.e.:
numactl --interleave=all runcpu <etc>

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

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 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 Sat Jun 20 04:31:07 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 (254.24+suse.148.g83b9060b6e)
12. Services, from systemctl list-unit-files
13. Linux kernel boot-time arguments, from /proc/cmdline
14. cpupower frequency-info
15. tuned-adm active

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Platform Notes (Continued)

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

```
-----
1. uname -srvn
Linux 6.4.0-150700.51-default #1 SMP PREEMPT_DYNAMIC Wed Apr 30 21:35:43 UTC 2025 (6930611) x86_64
```

```
-----
2. w
04:31:07 up 4:32, 1 user, load average: 132.66, 281.35, 313.85
USER      TTY      FROM          LOGIN@   IDLE   JCPU   PCPU WHAT
root      tty1      -             07May25  4:30m  1.53s  0.04s sh
reportable-ic2026.0-lin-sapphirerapids-rate-smt-on-20260429.sh
```

```
-----
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) 4123784
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) 4123784
virtual memory          (kbytes, -v) unlimited
file locks              (-x) unlimited
```

```
-----
5. sysinfo process ancestry
/usr/lib/systemd/systemd --switched-root --system --deserialize=31
```

(Continued on next page)



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Platform Notes (Continued)

```
login -- root
-bash
sh reportable-ic2026.0-lin-sapphirerapids-rate-smt-on-20260429.sh
runcpu --nobuild --reportable --action validate --define default-platform-flags --copies 344 -c
ic2026.0-sapphirerapids-cpu2026-1.0.1-rate-20260429.cfg --define smt-on --define cores=172 --define
physicalfirst --define invoke_with_interleave --define drop_caches --tune base,peak -o all fprate
runcpu --nobuild --reportable --action validate --define default-platform-flags --copies 344 --configfile
ic2026.0-sapphirerapids-cpu2026-1.0.1-rate-20260429.cfg --define smt-on --define cores=172 --define
physicalfirst --define invoke_with_interleave --define drop_caches --tune base,peak --output_format all
--nopower --runmode rate --tune base:peak --size refrate fprate --nopreenv --note-preenv --logfile
$SPEC/tmp/CPU2026.005/temlogs/preenv.fprate.005.0.log --lognum 005.0 --from_runcpu 2
specperl $SPEC/bin/sysinfo
$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
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 2.40.4:

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
Model name:	Intel(R) Xeon(R) 6787P
CPU family:	6

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Platform Notes (Continued)

Model: 173
Thread(s) per core: 2
Core(s) per socket: 86
Socket(s): 2
Stepping: 1
Frequency boost: enabled
CPU(s) scaling MHz: 41%
CPU max MHz: 2001.0000
CPU min MHz: 800.0000
BogoMIPS: 4000.00

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 ept
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 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

(Continued on next page)



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Platform Notes (Continued)

Vulnerability Spectre v1: Mitigation; usercopy/swaps barriers and __user pointer sanitization
Vulnerability Spectre v2: Mitigation; Enhanced / Automatic IBRS; IBPB conditional; RSB filling;
PBR SB-eIBRS Not affected; 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	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: 257398 MB
node 0 free: 237586 MB
node 1 cpus: 43-85,215-257
node 1 size: 258025 MB
node 1 free: 238555 MB
node 2 cpus: 86-128,258-300
node 2 size: 258025 MB
node 2 free: 238497 MB
node 3 cpus: 129-171,301-343
node 3 size: 257523 MB
node 3 free: 237778 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: 1055715812 kB

10. who -r

run-level 3 May 7 06:59

11. Systemd service manager version: systemd 254 (254.24+suse.148.g83b9060b6e)

Default Target Status

(Continued on next page)



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Platform Notes (Continued)

multi-user running

12. Services, from systemctl list-unit-files

STATE UNIT FILES

enabled apparmor auditd cron getty@ irqbalance issue-generator kbdsettings kdump kdump-early
 kdump-notify nvme-fc-boot-connections nvmmf-autoconnect postfix purge-kernels rollback
 systemd-pstore wicked wickedd-auto4 wickedd-dhcp4 wickedd-dhcp6 wickedd-nanny
enabled-runtime systemd-remount-fs
disabled boot-sysctl ca-certificates chrony-wait chronyd console-getty debug-shell
 exchange-bmc-os-info fsidd grub2-once haveged ipmievdm issue-add-ssh-keys kexec-load
 lunmask nfs nfs-blkmap rpcbind rpmconfigcheck serial-getty@ systemd-boot-check-no-failures
 systemd-confext systemd-network-generator systemd-sysext systemd-time-wait-sync
 systemd-timesyncd tuned
indirect systemd-userdbd wickedd

13. Linux kernel boot-time arguments, from /proc/cmdline

BOOT_IMAGE=/boot/vmlinuz-6.4.0-150700.51-default
root=UUID=abf2f043-1a11-4e74-925a-2d92d4c037b3
splash=silent
mitigations=auto
quiet
security=apparmor
crashkernel=382M,high
crashkernel=72M,low

14. cpupower frequency-info

analyzing CPU 11:

current policy: frequency should be within 800 MHz and 2.00 GHz.
The governor "ondemand" may decide which speed to use
within this range.

boost state support:

Supported: yes

Active: yes

15. tuned-adm active

It seems that tuned daemon is not running, preset profile is not activated.
Preset profile: throughput-performance

16. sysctl

kernel.numa_balancing	1
kernel.randomize_va_space	2
vm.compaction_proactiveness	20

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Platform Notes (Continued)

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

17. /sys/kernel/mm/transparent_hugepage
defrag always defer defer+madvice [madvice] never
enabled [always] madvice never
hpage_pmd_size 2097152
shmem_enabled always within_size advise [never] deny force

18. /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

19. OS release
From /etc/*-release /etc/*-version
os-release SUSE Linux Enterprise Server 15 SP7

20. Disk information
SPEC is set to: /home/cpu2026
Filesystem Type Size Used Avail Use% Mounted on
/dev/nvme0n1p2 xfs 931G 117G 815G 13% /

21. /sys/devices/virtual/dmi/id

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Platform Notes (Continued)

Vendor: IEIT SYSTEMS
Product: NF5180-M8-A0-R0-00
Product Family: Not specified
Serial: 0000000000

22. dmidecode

Additional information from dmidecode 3.6 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:

4x Hynix HMC94BDJHA380N 64 GB 1 rank 12800, configured at 8000
4x Hynix HMC94BDJHA383N 64 GB 1 rank 12800, configured at 8000
5x Hynix HMC94BDJHA462N 64 GB 1 rank 12800, configured at 8000
3x Hynix HMC94BDJHA464N 64 GB 1 rank 12800, configured at 8000

23. 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, peak)

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++ | 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)

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,
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Compiler Version Notes (Continued)

C++, C | 709.cactus_r(base, peak) 737.gmsh_r(base, peak)

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, peak) 749.fotonik3d_r(base, peak) 765.roms_r(base,
peak)

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
-xsapphirerapids -mprefer-vector-width=512 -O3 -ffp-model=fast -flto
-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-L/usr/local/jemalloc-5.3.0/lib -ljemalloc

(Continued on next page)



SPEC CPU®2026 Floating Point Rate Result

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SPECrate®2026_fp_base = 745

meta brain NF5180G8 (Intel Xeon 6787P)

SPECrate®2026_fp_peak = 761

CPU2026 License: 3358

Test Sponsor: IEIT Systems Co., Ltd.

Tested by: IEIT Systems Co., Ltd.

Test Date: Jun-2026

Hardware Availability: Apr-2025

Software Availability: May-2026

Base Optimization Flags (Continued)

C++ benchmarks:

-m64 -std=c++17 -Wl,-z,muldefs -Wl,-plugin-opt=-inline-threshold=1500
-xsapphirerapids -mprefer-vector-width=512 -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
-xsapphirerapids -mprefer-vector-width=512 -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 -xsapphirerapids
-mprefer-vector-width=512 -O3 -ffp-model=fast -flto -mfpmath=sse
-funroll-loops -qopt-mem-layout-trans=4 -L/usr/local/jemalloc-5.3.0/lib
-ljemalloc

Peak Compiler Invocation

C benchmarks:

icx

C++ benchmarks:

icpx

Fortran benchmarks:

ifx

Benchmarks using both C and C++:

icpx icx

Peak Portability Flags

737.gmsh_r: -fno-associative-math



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Peak Optimization Flags

C benchmarks:

782.lbm_r: basepeak = yes

C++ benchmarks:

```
731.astcenc_r: -m64 -std=c++17 -Wl,-z,muldefs
-Wl,-plugin-opt=-inline-threshold=1500
-fprofile-generate(pass 1)
-fprofile-use=default.profdata(pass 2) -xHost(pass 1)
-ffp-model=fast -xsapphirerapids(pass 2) -flto
-mprefer-vector-width=512 -qopt-mem-layout-trans=4 -O3
-mfpmath=sse -funroll-loops
-L/usr/local/jemalloc-5.3.0/lib -ljemalloc
```

736.ocio_r: basepeak = yes

748.flightdm_r: Same as 731.astcenc_r

766.femflow_r: basepeak = yes

767.nest_r: Same as 731.astcenc_r

772.marian_r: basepeak = yes

Fortran benchmarks:

722.palm_r: basepeak = yes

749.fotonik3d_r: basepeak = yes

765.roms_r: basepeak = yes

Benchmarks using both C and C++:

709.cactus_r: basepeak = yes

```
737.gmsh_r: -m64 -std=c++17 -std=c18 -Wl,-z,muldefs
-Wl,-plugin-opt=-inline-threshold=1500
-fprofile-generate(pass 1)
-fprofile-use=default.profdata(pass 2) -xHost(pass 1)
-ffp-model=fast -xsapphirerapids(pass 2) -flto
-mprefer-vector-width=512 -qopt-mem-layout-trans=4 -O3
-mfpmath=sse -funroll-loops
-L/usr/local/jemalloc-5.3.0/lib -ljemalloc
```



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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/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/Intel-ic2026-official-linux64-v1.1.xml>

<http://www.spec.org/cpu2026/results/flags/IEIT-Platform-Settings-intel-V2.0.xml>

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