



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2026 Standard Performance Evaluation Corporation

## Epsilon IT Sp. z o.o.

SPECrate®2017\_fp\_base = 357

eterio 240 RE3 (2.40 GHz, Intel Xeon Silver 4510)

SPECrate®2017\_fp\_peak = 364

CPU2017 License: 9081

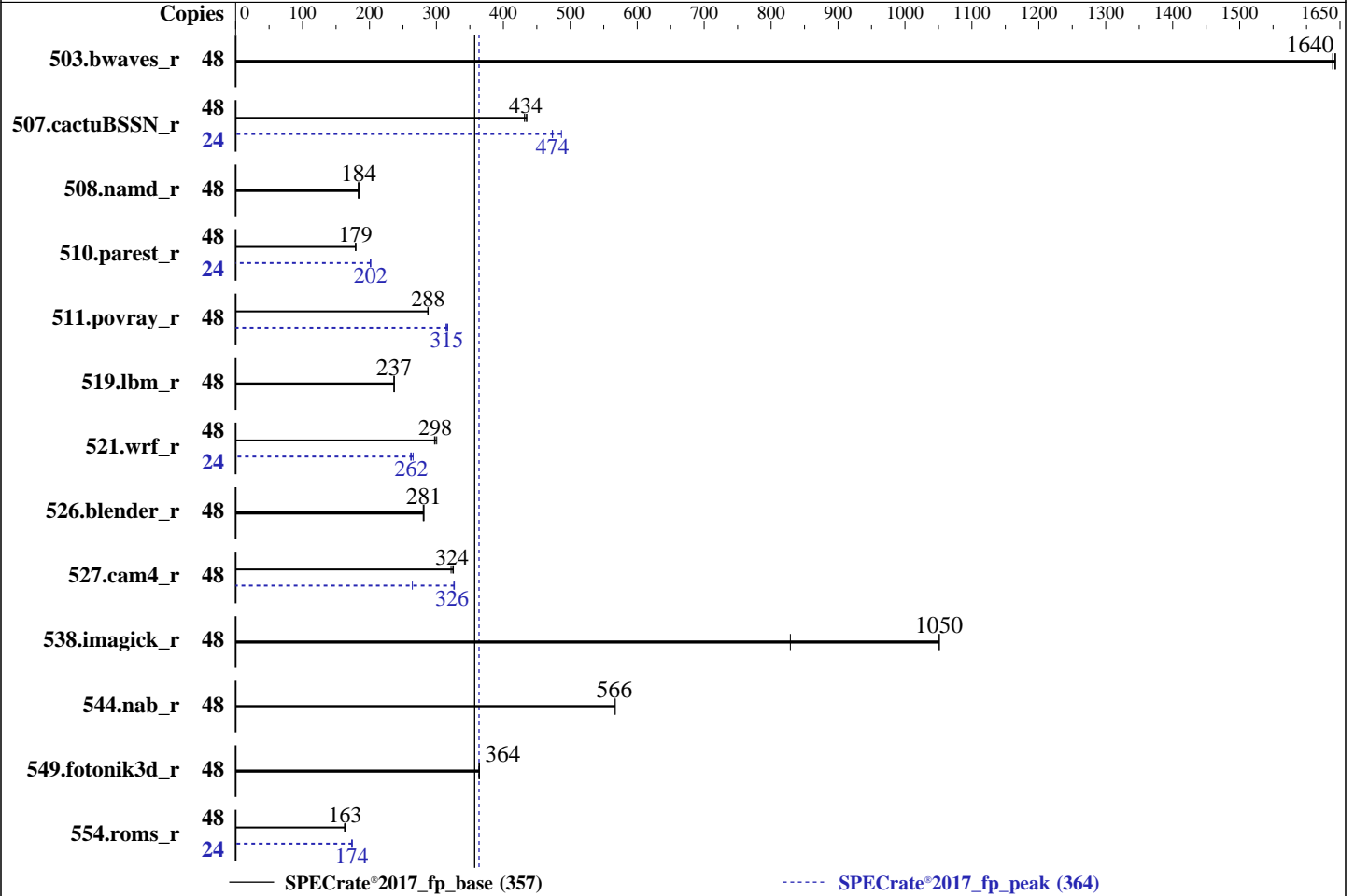
Test Date: Feb-2026

Test Sponsor: Epsilon IT Sp. z o.o.

Hardware Availability: Dec-2023

Tested by: Epsilon IT Sp. z o.o.

Software Availability: Jan-2026



### Hardware

CPU Name: Intel Xeon Silver 4510  
 Max MHz: 4100  
 Nominal: 2400  
 Enabled: 24 cores, 2 chips, 2 threads/core  
 Orderable: 1,2 chip(s)  
 Cache L1: 32 KB I + 48 KB D on chip per core  
 L2: 2 MB I+D on chip per core  
 L3: 30 MB I+D on chip per chip  
 Other: None  
 Memory: 1 TB (16 x 64 GB 2Rx4 PC5-6400B-R, running at 4400)  
 Storage: 1 x 1.92 TB SATA III SSD  
 Other: CPU Cooling: Air

### Software

OS: SUSE Linux Enterprise Server 16.0  
 Kernel 6.12.0-160000.9-default x86\_64  
 Compiler: C/C++: Version 2025.2 of Intel oneAPI DPC++/C++ Compiler for Linux;  
 Fortran: Version 2025.2 of Intel Fortran Compiler for Linux;  
 Parallel: No  
 Firmware: BIOS Version 2.8 released Oct-2025  
 File System: ext4  
 System State: Run level 3 (multi-user)  
 Base Pointers: 64-bit  
 Peak Pointers: 64-bit  
 Other: jemalloc memory allocator V5.0.1  
 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
503.bwaves_r	48	294	1640	<u>293</u>	<u>1640</u>	293	1640	48	294	1640	<u>293</u>	<u>1640</u>	293	1640
507.cactuBSSN_r	48	141	432	140	435	<u>140</u>	<u>434</u>	24	<u>64.2</u>	<u>474</u>	64.2	473	62.4	487
508.namd_r	48	<u>248</u>	<u>184</u>	249	183	248	184	48	<u>248</u>	<u>184</u>	249	183	248	184
510.parest_r	48	<u>700</u>	<u>179</u>	700	179	700	179	24	312	201	311	202	<u>311</u>	<u>202</u>
511.povray_r	48	390	288	<u>390</u>	<u>288</u>	390	287	48	<u>355</u>	<u>315</u>	356	314	354	317
519.lbm_r	48	214	237	213	237	<u>214</u>	<u>237</u>	48	214	237	213	237	<u>214</u>	<u>237</u>
521.wrf_r	48	<u>361</u>	<u>298</u>	362	297	358	301	24	203	265	<u>205</u>	<u>262</u>	206	262
526.blender_r	48	260	281	261	280	<u>260</u>	<u>281</u>	48	260	281	261	280	<u>260</u>	<u>281</u>
527.cam4_r	48	258	325	<u>259</u>	<u>324</u>	261	322	48	257	327	<u>258</u>	<u>326</u>	318	264
538.imagick_r	48	<u>114</u>	<u>1050</u>	144	829	114	1050	48	<u>114</u>	<u>1050</u>	144	829	114	1050
544.nab_r	48	143	566	<u>143</u>	<u>566</u>	142	567	48	143	566	<u>143</u>	<u>566</u>	142	567
549.fotonik3d_r	48	<u>514</u>	<u>364</u>	514	364	514	364	48	<u>514</u>	<u>364</u>	514	364	514	364
554.roms_r	48	<u>467</u>	<u>163</u>	468	163	467	163	24	220	174	219	174	<u>219</u>	<u>174</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 = "/cpu2017-1.1.9/lib/intel64:/cpu2017-1.1.9/je5.0.1-64"  
MALLOC\_CONF = "retain:true"

## General Notes

Binaries compiled on a system with 2x Intel Xeon Platinum 8280M CPU + 384GB RAM memory using Red Hat Enterprise Linux 8.4

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.

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## General Notes (Continued)

jemalloc, a general purpose malloc implementation  
built with the RedHat Enterprise 7.5, and the system compiler gcc 4.8.5  
sources available from jemalloc.net or <https://github.com/jemalloc/jemalloc/releases>

## Platform Notes

Bios settings:  
ENERGY\_PERF\_BIAS\_CFG mode = Performance  
Patrol Scrub = Disabled  
SNC = Enable SNC2 (2-Clusters)  
Hyper-Threading (All) = Enable

BMC Configuration:  
Fan mode = Full speed mode

Sysinfo program /cpu2017-1.1.9/bin/sysinfo  
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197  
running on SUT Thu Feb 26 21:07:55 2026

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

### ----- Table of contents -----

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. Systemd service manager version: systemd 257 (257.10+suse.31.gfb9d92682b)
11. Services, from systemctl list-unit-files
12. Linux kernel boot-time arguments, from /proc/cmdline
13. cpupower frequency-info
14. tuned-adm active
15. systemctl
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 -a  
Linux SUT 6.12.0-160000.9-default #1 SMP PREEMPT\_DYNAMIC Fri Jan 16 09:29:05 UTC 2026 (9badd3c) x86\_64  
x86\_64 x86\_64 GNU/Linux  
-----

-----  
2. w  
21:07:55 up 5:40, 2 users, load average: 40.97, 46.44, 47.49  
USER TTY FROM LOGIN@ IDLE JCPU PCPU WHAT  
-----

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### Platform Notes (Continued)

```

root    tty1    -                15:27    5:34m  0.09s  0.09s  -bash
root    tty2    -                15:29    5:35m  0.98s  0.01s  -bash

```

#### 3. Username

From environment variable \$USER: root

#### 4. ulimit -a

```

real-time non-blocking time (microseconds, -R) unlimited
core file size              (blocks, -c) unlimited
data seg size                (kbytes, -d) unlimited
scheduling priority         (-e) 0
file size                    (blocks, -f) unlimited
pending signals              (-i) 4126191
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) 4126191
virtual memory                (kbytes, -v) unlimited
file locks                   (-x) unlimited

```

#### 5. sysinfo process ancestry

```

/usr/lib/systemd/systemd --switched-root --system --deserialize=47
login -- root
-bash
-bash
runcpu --nobuild --action validate --define default-platform-flags --define numcopies=48 -c
  ic2025.2-linux64-sapphirerapids-rate-20250605.cfg --define smt-on --define cores=24 --define physicalfirst
  --define invoke_with_interleave --define drop_caches --tune base,peak --o pdf fprate
runcpu --nobuild --action validate --define default-platform-flags --define numcopies=48 --configfile
  ic2025.2-linux64-sapphirerapids-rate-20250605.cfg --define smt-on --define cores=24 --define physicalfirst
  --define invoke_with_interleave --define drop_caches --tune base,peak --output_format pdf --nopower
  --runmode rate --tune base:peak --size refrate fprate --nopreenv --note-preenv --logfile
  $SPEC/tmp/CPU2017.002/templogs/preenv.fprate.002.0.log --lognum 002.0 --from_runcpu 2
specperl $SPEC/bin/sysinfo
$SPEC = /cpu2017-1.1.9

```

#### 6. /proc/cpuinfo

```

model name      : INTEL(R) XEON(R) SILVER 4510
vendor_id      : GenuineIntel
cpu family     : 6
model          : 143
stepping       : 8
microcode      : 0x2b000650
bugs           : spectre_v1 spectre_v2 spec_store_bypass swapgs eibrs_pbrsb bhi spectre_v2_user vmscape
cpu cores      : 12
siblings       : 24
2 physical ids (chips)
48 processors (hardware threads)
physical id 0: core ids 0-11
physical id 1: core ids 0-11
physical id 0: apicids 0-23

```

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### Platform Notes (Continued)

physical id 1: apicids 64-87

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 2.41.1:

```

Architecture:                x86_64
CPU op-mode(s):              32-bit, 64-bit
Address sizes:                46 bits physical, 57 bits virtual
Byte Order:                   Little Endian
CPU(s):                       48
On-line CPU(s) list:         0-47
Vendor ID:                    GenuineIntel
Model name:                   INTEL(R) XEON(R) SILVER 4510
CPU family:                   6
Model:                        143
Thread(s) per core:          2
Core(s) per socket:          12
Socket(s):                    2
Stepping:                     8
CPU(s) scaling MHz:          20%
CPU max MHz:                  4100.0000
CPU min MHz:                  800.0000
BogoMIPS:                     4800.00
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 monitor 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
                               bmil 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 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_lld arch_capabilities
L1d cache:                    1.1 MiB (24 instances)
L1i cache:                    768 KiB (24 instances)
L2 cache:                     48 MiB (24 instances)
L3 cache:                     60 MiB (2 instances)
NUMA node(s):                 4
NUMA node0 CPU(s):           0-5,24-29
NUMA node1 CPU(s):           6-11,30-35
NUMA node2 CPU(s):           12-17,36-41
NUMA node3 CPU(s):           18-23,42-47
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

```

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### Platform Notes (Continued)

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; PBRSE-eIBRS SW sequence; BHI BHI_DIS_S
Vulnerability Srbds:	Not affected
Vulnerability Tsa:	Not affected
Vulnerability Tsx async abort:	Not affected
Vulnerability Vmscape:	Mitigation; IBPB before exit to userspace

From lscpu --cache:

NAME	ONE-SIZE	ALL-SIZE	WAYS	TYPE	LEVEL	SETS	PHY-LINE	COHERENCY-SIZE
L1d	48K	1.1M	12	Data	1	64	1	64
L1i	32K	768K	8	Instruction	1	64	1	64
L2	2M	48M	16	Unified	2	2048	1	64
L3	30M	60M	15	Unified	3	32768	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: 0-5,24-29
node 0 size: 257668 MB
node 0 free: 247196 MB
node 1 cpus: 6-11,30-35
node 1 size: 258043 MB
node 1 free: 252073 MB
node 2 cpus: 12-17,36-41
node 2 size: 258043 MB
node 2 free: 252154 MB
node 3 cpus: 18-23,42-47
node 3 size: 257989 MB
node 3 free: 251706 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: 1056507188 kB

'who -r' did not return a run level

10. Systemd service manager version: systemd 257 (257.10+suse.31.gfb9d92682b)

```

Default Target Status
multi-user      running

```

11. Services, from systemctl list-unit-files

STATE	UNIT FILES
enabled	NetworkManager NetworkManager-dispatcher NetworkManager-wait-online appstream-sync-cache audit-rules auditd chronyd dbus-broker firewalld getty@ irqbalance issue-generator

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### Platform Notes (Continued)

```

kdbsettings klog lvm2-monitor rollback rsyslog smartd soft-reboot-cleanup sshd
systemd-pstore wpa_supplicant wtmpdb-update-boot
enabled-runtime      systemd-fsck-root systemd-remount-fs
disabled             blk-availability boot-sysctl ca-certificates ca-certificates-setup chrony-wait
                    console-getty containerd debug-shell dnsmasq docker exchange-bmc-os-info gpm grub2-once
                    hwloc-dump-hwdata ipmievd issue-add-ssh-keys jeos-firstboot jeos-firstboot-snapshot
                    kernel-sysctl kexec-load langset lastlog2-import lunmask lvm-devices-import man-db-create
                    multipathd nftables nis-domainname rpmconfigcheck rsyncd serial-getty@
                    setup-systemd-proxy-env smartd_generate_opts snmpd snmptrapd
                    systemd-boot-check-no-failures systemd-confext systemd-network-generator systemd-sysex
                    systemd-time-wait-sync systemd-timesyncd systemd-udev-load-credentials tuned udisks2
                    wpa_supplicant@
indirect             systemd-userdbd

```

```

-----
12. Linux kernel boot-time arguments, from /proc/cmdline
BOOT_IMAGE=/boot/vmlinuz-6.12.0-160000.9-default
root=UUID=59f9f04f-e759-4ecc-8e22-28acb39f7f76
mitigations=auto
quiet
security=
vga=normal

```

```

-----
13. cpupower frequency-info
analyzing CPU 34:
  current policy: frequency should be within 800 MHz and 4.10 GHz.
                  The governor "performance" may decide which speed to use
                  within this range.

  boost state support:
    Supported: yes
    Active: yes

```

```

-----
14. tuned-adm active
No current active profile.

```

```

-----
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
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

```

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### Platform Notes (Continued)

```

16. /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

```

```

-----
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 SUSE Linux Enterprise Server 16.0

```

```

-----
19. Disk information
SPEC is set to: /cpu2017-1.1.9
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda2        ext4  877G  42G  791G   5% /

```

```

-----
20. /sys/devices/virtual/dmi/id
   Vendor:          Epsilon IT Sp. z o.o
   Product:         eterio 240 RE3
   Product Family:  Server
   Serial:          02600060

```

```

-----
21. 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:
  16x Samsung M321R8GA0PB2-CCPWF 64 GB 2 rank 6400, configured at 4400

```

```

-----
22. BIOS
(This section combines info from /sys/devices and dmidecode.)
   BIOS Vendor:      American Megatrends International, LLC.
   BIOS Version:     2.8
   BIOS Date:        10/08/2025
   BIOS Revision:    5.32

```

### Compiler Version Notes

```

=====
C | 519.lbm_r(base, peak) 538.imagick_r(base, peak) 544.nab_r(base, peak)
=====

```

```

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2025.2.0 Build 20250605
Copyright (C) 1985-2025 Intel Corporation. All rights reserved.

```

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## Compiler Version Notes (Continued)

=====  
C++ | 508.namd\_r(base, peak) 510.parest\_r(base, peak)  
=====

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2025.2.0 Build 20250605  
Copyright (C) 1985-2025 Intel Corporation. All rights reserved.  
=====

=====  
C++, C | 511.povray\_r(base, peak) 526.blender\_r(base, peak)  
=====

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2025.2.0 Build 20250605  
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=====

=====  
C++, C, Fortran | 507.cactuBSSN\_r(base, peak)  
=====

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Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2025.2.0 Build 20250605  
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=====

=====  
Fortran | 503.bwaves\_r(base, peak) 549.fotonik3d\_r(base, peak) 554.roms\_r(base, peak)  
=====

Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2025.2.0 Build 20250605  
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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:

icx

C++ benchmarks:

icpx

Fortran benchmarks:

ifx

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

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Epsilon IT Sp. z o.o.

SPECrate®2017\_fp\_base = 357

eterio 240 RE3 (2.40 GHz, Intel Xeon Silver 4510)

SPECrate®2017\_fp\_peak = 364

CPU2017 License: 9081

Test Sponsor: Epsilon IT Sp. z o.o.

Tested by: Epsilon IT Sp. z o.o.

Test Date: Feb-2026

Hardware Availability: Dec-2023

Software Availability: Jan-2026

## Base Compiler Invocation (Continued)

Benchmarks using both Fortran and C:

ifx icx

Benchmarks using both C and C++:

icpx icx

Benchmarks using Fortran, C, and C++:

icpx icx ifx

## Base Portability Flags

```
503.bwaves_r: -DSPEC_LP64
507.cactuBSSN_r: -DSPEC_LP64
508.namd_r: -DSPEC_LP64
510.parest_r: -DSPEC_LP64
511.povray_r: -DSPEC_LP64
519.lbm_r: -DSPEC_LP64
521.wrf_r: -DSPEC_LP64 -DSPEC_CASE_FLAG -convert big_endian
526.blender_r: -DSPEC_LP64 -DSPEC_LINUX -funsigned-char
527.cam4_r: -DSPEC_LP64 -DSPEC_CASE_FLAG
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:

```
-w -std=c11 -m64 -Wl,-z,muldefs -xsapphirerapids -Ofast -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-Wno-implicit-int -mprefer-vector-width=512 -ljemalloc
-L/usr/local/jemalloc64-5.0.1/lib
```

C++ benchmarks:

```
-w -std=c++14 -m64 -Wl,-z,muldefs -xsapphirerapids -Ofast
-ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -mprefer-vector-width=512 -ljemalloc
-L/usr/local/jemalloc64-5.0.1/lib
```

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# SPEC CPU®2017 Floating Point Rate Result

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Hardware Availability: Dec-2023

Tested by: Epsilon IT Sp. z o.o.

Software Availability: Jan-2026

## Base Optimization Flags (Continued)

Fortran benchmarks:

```
-w -m64 -Wl,-z,muldefs -xsapphirerapids -Ofast -ffast-math -flto
-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-nostandard-realloc-lhs -align array32byte -auto -ljemalloc
-L/usr/local/jemalloc64-5.0.1/lib
```

Benchmarks using both Fortran and C:

```
-w -m64 -std=c11 -Wl,-z,muldefs -xsapphirerapids -Ofast -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-Wno-implicit-int -mprefer-vector-width=512 -nostandard-realloc-lhs
-align array32byte -auto -ljemalloc -L/usr/local/jemalloc64-5.0.1/lib
```

Benchmarks using both C and C++:

```
-w -std=c++14 -m64 -std=c11 -Wl,-z,muldefs -xsapphirerapids -Ofast
-ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -Wno-implicit-int -mprefer-vector-width=512
-ljemalloc -L/usr/local/jemalloc64-5.0.1/lib
```

Benchmarks using Fortran, C, and C++:

```
-w -m64 -std=c++14 -std=c11 -Wl,-z,muldefs -xsapphirerapids -Ofast
-ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -Wno-implicit-int -mprefer-vector-width=512
-nostandard-realloc-lhs -align array32byte -auto -ljemalloc
-L/usr/local/jemalloc64-5.0.1/lib
```

## Peak Compiler Invocation

C benchmarks:

icx

C++ benchmarks:

icpx

Fortran benchmarks:

ifx

Benchmarks using both Fortran and C:

ifx icx

Benchmarks using both C and C++:

icpx icx

Benchmarks using Fortran, C, and C++:

icpx icx ifx



# SPEC CPU®2017 Floating Point Rate Result

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SPECrate®2017\_fp\_base = 357

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SPECrate®2017\_fp\_peak = 364

CPU2017 License: 9081

Test Sponsor: Epsilon IT Sp. z o.o.

Tested by: Epsilon IT Sp. z o.o.

Test Date: Feb-2026

Hardware Availability: Dec-2023

Software Availability: Jan-2026

## Peak Portability Flags

Same as Base Portability Flags

## Peak Optimization Flags

C benchmarks:

519.lbm\_r: basepeak = yes

538.imagick\_r: basepeak = yes

544.nab\_r: basepeak = yes

C++ benchmarks:

508.namd\_r: basepeak = yes

510.parest\_r: -w -std=c++14 -m64 -Wl,-z,muldefs -xsaphirerapids -Ofast -ffast-math -flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -mprefer-vector-width=512 -ljemalloc -L/usr/local/jemalloc64-5.0.1/lib

Fortran benchmarks:

503.bwaves\_r: basepeak = yes

549.fotonik3d\_r: basepeak = yes

554.roms\_r: -w -m64 -Wl,-z,muldefs -xsaphirerapids -Ofast -ffast-math -flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -nostandard-realloc-lhs -align array32byte -auto -ljemalloc -L/usr/local/jemalloc64-5.0.1/lib

Benchmarks using both Fortran and C:

-w -m64 -std=c11 -Wl,-z,muldefs -xsaphirerapids -Ofast -ffast-math -flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -Wno-implicit-int -mprefer-vector-width=512 -nostandard-realloc-lhs -align array32byte -auto -ljemalloc -L/usr/local/jemalloc64-5.0.1/lib

Benchmarks using both C and C++:

511.povray\_r: -w -std=c++14 -m64 -std=c11 -Wl,-z,muldefs -fprofile-generate(pass 1) -fprofile-use=default.profddata(pass 2) -xCORE-AVX2(pass 1)

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# SPEC CPU®2017 Floating Point Rate Result

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Software Availability: Jan-2026

## Peak Optimization Flags (Continued)

511.povray\_r (continued):

```
-flto -Ofast -xCORE-AVX512 -ffast-math -mfpmath=sse  
-funroll-loops -qopt-mem-layout-trans=4 -Wno-implicit-int  
-mprefer-vector-width=512 -ljemalloc  
-L/usr/local/jemalloc64-5.0.1/lib
```

526.blender\_r: basepeak = yes

Benchmarks using Fortran, C, and C++:

```
-w -m64 -std=c++14 -std=c11 -Wl,-z,muldefs -xsaphirerapids -Ofast  
-ffast-math -flto -mfpmath=sse -funroll-loops  
-qopt-mem-layout-trans=4 -Wno-implicit-int -mprefer-vector-width=512  
-nostandard-realloc-lhs -align array32byte -auto -ljemalloc  
-L/usr/local/jemalloc64-5.0.1/lib
```

The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2017/flags/Intel-ic2025-official-linux64.html>

<http://www.spec.org/cpu2017/flags/Epsilon-Platform-Flags-RevA-Feb-2026-For-Intel-Processors.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2017/flags/Intel-ic2025-official-linux64.xml>

<http://www.spec.org/cpu2017/flags/Epsilon-Platform-Flags-RevA-Feb-2026-For-Intel-Processors.xml>

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