



SPEC CPU®2017 Integer Rate Result

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Epsilon IT Sp. z o.o.

SPECrate®2017_int_base = 121

eterio 125 RH3 (2.40 GHz, Intel Xeon Silver 4510)

SPECrate®2017_int_peak = 123

CPU2017 License: 9081

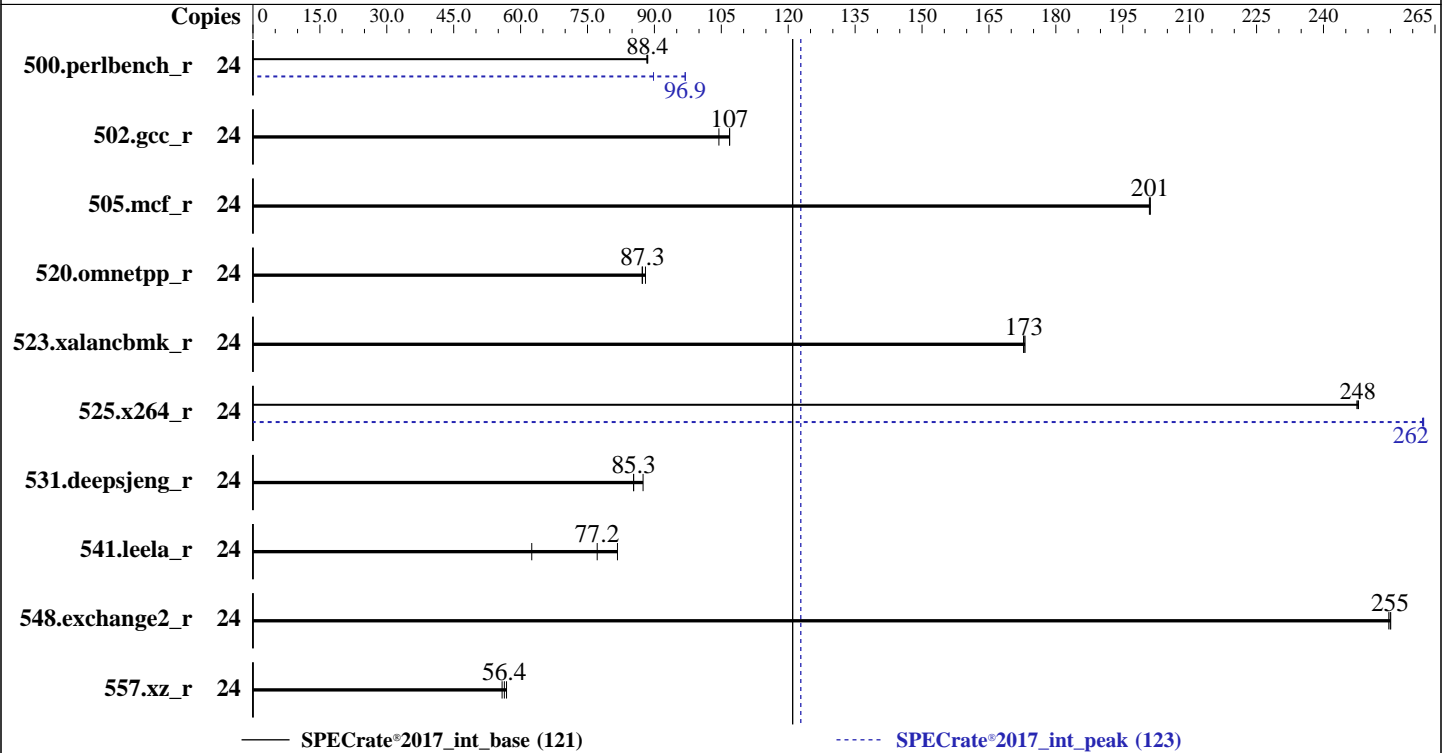
Test Sponsor: Epsilon IT Sp. z o.o.

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

Test Date: Mar-2026

Hardware Availability: Dec-2023

Software Availability: Feb-2026



Hardware

CPU Name: Intel Xeon Silver 4510
 Max MHz: 4100
 Nominal: 2400
 Enabled: 12 cores, 1 chip, 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: 512 GB (8 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 R20 released Dec-2025
 File System: ext4
 System State: Run level 3 (multi-user)
 Base Pointers: 64-bit
 Peak Pointers: 64-bit
 Other: None
 Power Management: BIOS and OS set to prefer performance at the cost of additional power usage.



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Platform Notes

Bios settings:
ENERGY_PERF_BIAS_CFG mode = Performance
Patrol Scrub = Disabled
SNC = Enable SNC2 (2-Clusters)
Enable LP [Global] = ALL LPs

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 Tue Mar 3 15:08:07 2026

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

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- 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
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- 15. sysctl
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- 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
15:08:07 up 14 min, 2 users, load average: 0.00, 0.00, 0.00
USER   TTY     FROM                    LOGIN@  IDLE   JCPU   PCPU   WHAT
root   tty1    -                       14:55  15.00s 0.97s  0.01s -bash
root   tty2    -                       14:56   7.00s 0.04s  0.04s -bash
  
```

```

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

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Platform Notes (Continued)

```
-----  
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) 2061303  
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) 2061303  
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=24 -c  
ic2025.2-linux64-sapphirerapids-rate-20250605.cfg --define smt-on --define cores=12 --define physicalfirst  
--define invoke_with_interleave --define drop_caches --tune base,peak -o pdf intrate  
runcpu --nobuild --action validate --define default-platform-flags --define numcopies=24 --configfile  
ic2025.2-linux64-sapphirerapids-rate-20250605.cfg --define smt-on --define cores=12 --define physicalfirst  
--define invoke_with_interleave --define drop_caches --tune base,peak --output_format pdf --nopower  
--runmode rate --tune base:peak --size reframe intrate --nopreenv --note-preenv --logfile  
$SPEC/tmp/CPU2017.001/templots/preenv.intrate.001.0.log --lognum 001.0 --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 : 0x2b000661  
bugs : spectre_v1 spectre_v2 spec_store_bypass swapgs eibrs_pbrsb bhi spectre_v2_user vmscape  
cpu cores : 12  
siblings : 24  
1 physical ids (chips)  
24 processors (hardware threads)  
physical id 0: core ids 0-11  
physical id 0: apicids 0-23  
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
```

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Platform Notes (Continued)

```
BOOT_IMAGE=/boot/vmlinuz-6.12.0-160000.9-default
root=UUID=59f9f04f-e759-4ecc-8e22-28acb39f7f76
mitigations=auto
quiet
security=
```

```
-----
13. cpupower frequency-info
analyzing CPU 22:
  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
```

```
-----
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 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 20G 813G 3% /

20. /sys/devices/virtual/dmi/id
Vendor: Giga Computing
Product: MS03-CEO-000
Product Family: Server
Serial: 01234567890123

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:
8x Samsung M321R8GA0PB2-CCPWF 64 GB 2 rank 6400, configured at 4400

22. BIOS
(This section combines info from /sys/devices and dmidecode.)
BIOS Vendor: GIGABYTE
BIOS Version: R20
BIOS Date: 12/17/2025
BIOS Revision: 5.32

Compiler Version Notes

=====
C | 500.perlbench_r(base, peak) 502.gcc_r(base, peak) 505.mcf_r(base, peak) 525.x264_r(base, peak)
| 557.xz_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++ | 520.omnetpp_r(base, peak) 523.xalancbmk_r(base, peak) 531.deepsjeng_r(base, peak)
| 541.leela_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.

=====
Fortran | 548.exchange2_r(base, peak)

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

C benchmarks:

icx

C++ benchmarks:

icpx

Fortran benchmarks:

ifx

Base Portability Flags

```

500.perlbench_r: -DSPEC_LP64 -DSPEC_LINUX_X64
502.gcc_r: -DSPEC_LP64
505.mcf_r: -DSPEC_LP64
520.omnetpp_r: -DSPEC_LP64
523.xalancbmk_r: -DSPEC_LP64 -DSPEC_LINUX
525.x264_r: -DSPEC_LP64
531.deepsjeng_r: -DSPEC_LP64
541.leela_r: -DSPEC_LP64
548.exchange2_r: -DSPEC_LP64
557.xz_r: -DSPEC_LP64

```

Base Optimization Flags

C benchmarks:

```

-w -std=c11 -m64 -Wl,-z,muldefs -xsapphirerapids -O3 -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-L/home/specdev/intel-compilers/compiler/2025.2/lib -lqkmalloc

```

C++ benchmarks:

```

-w -std=c++14 -m64 -Wl,-z,muldefs -xsapphirerapids -O3 -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-fdelayed-template-parsing
-L/home/specdev/intel-compilers/compiler/2025.2/lib -lqkmalloc

```

Fortran benchmarks:

```

-w -m64 -Wl,-z,muldefs -xsapphirerapids -O3 -ffast-math -flto
-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-nostandard-realloc-lhs -align array32byte -auto
-L/home/specdev/intel-compilers/compiler/2025.2/lib -lqkmalloc

```



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Peak Compiler Invocation

C benchmarks:

icx

C++ benchmarks:

icpx

Fortran benchmarks:

ifx

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:

```

500.perlbench_r: -w -std=c11 -m64 -Wl,-z,muldefs
-fprofile-generate(pass 1)
-fprofile-use=default.profddata(pass 2) -xCORE-AVX2(pass 1)
-flto -Ofast -xCORE-AVX512 -ffast-math -mfpmath=sse
-funroll-loops -qopt-mem-layout-trans=4
-fno-strict-overflow -fno-strict-aliasing
-L/home/specdev/intel-compilers/compiler/2025.2/lib
-lqkmalloc

502.gcc_r: basepeak = yes

505.mcf_r: basepeak = yes

525.x264_r: -w -std=c11 -m64 -Wl,-z,muldefs -xsapphirerapids -Ofast
-ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -fno-alias
-L/home/specdev/intel-compilers/compiler/2025.2/lib
-lqkmalloc

557.xz_r: basepeak = yes

```

C++ benchmarks:

520.omnetpp_r: basepeak = yes

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Peak Optimization Flags (Continued)

523.xalancbmk_r: basepeak = yes

531.deepsjeng_r: basepeak = yes

541.leela_r: basepeak = yes

Fortran benchmarks:

548.exchange2_r: basepeak = yes

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

Tested with SPEC CPU®2017 v1.1.9 on 2026-03-03 09:08:06-0500.

Report generated on 2026-03-25 10:08:32 by CPU2017 PDF formatter v6716.

Originally published on 2026-03-24.