



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2025 Standard Performance Evaluation Corporation

IEIT Systems Co., Ltd.

SPECrate®2017\_fp\_base = 542

meta brain NF5466G8 (Intel Xeon 6517P)

SPECrate®2017\_fp\_peak = 551

CPU2017 License: 3358

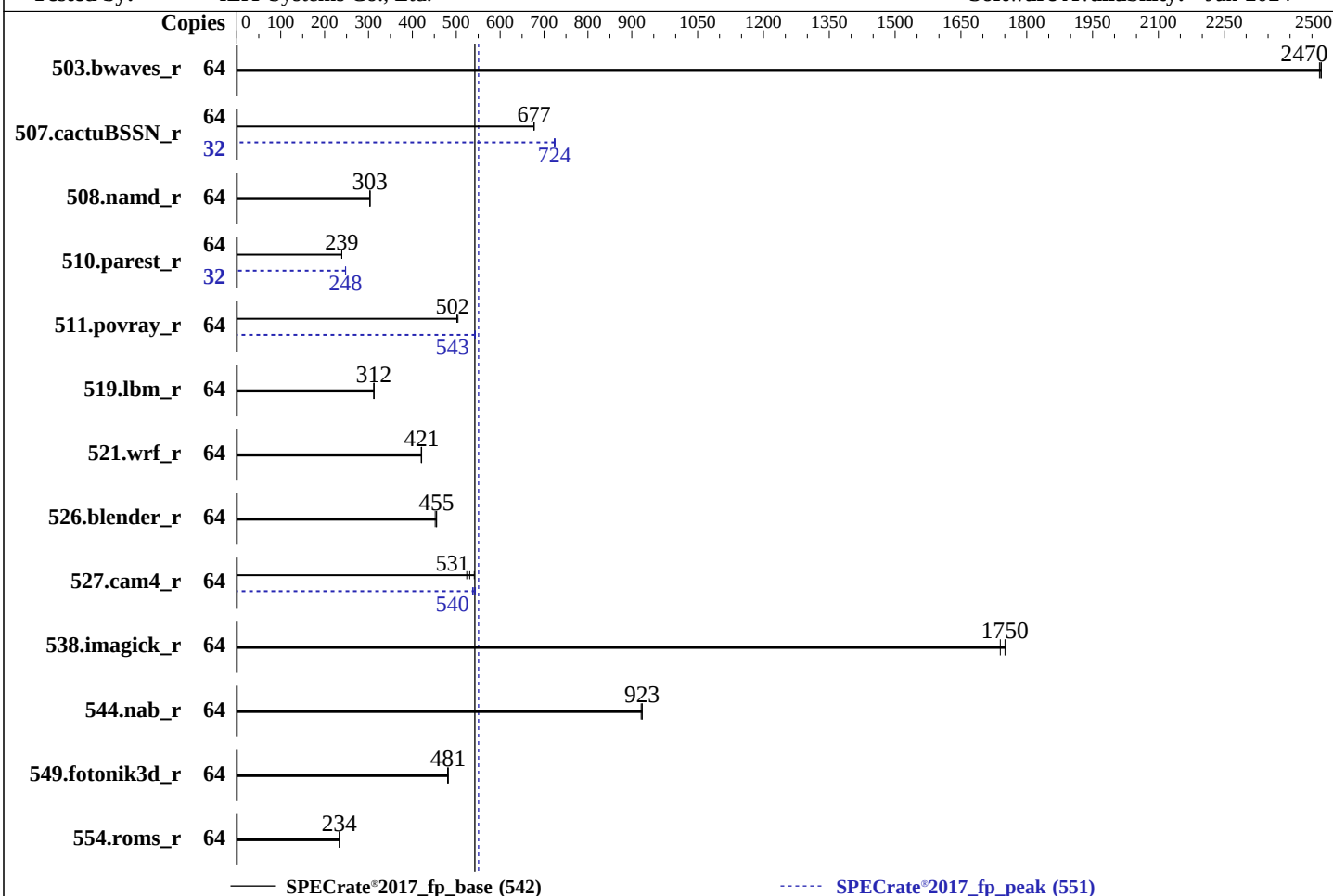
Test Date: Jun-2025

Test Sponsor: IEIT Systems Co., Ltd.

Hardware Availability: Apr-2025

Tested by: IEIT Systems Co., Ltd.

Software Availability: Jun-2024



## Hardware

CPU Name: Intel Xeon 6517P  
Max MHz: 4200  
Nominal: 3200  
Enabled: 32 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: 72 MB I+D on chip per chip  
Other: None  
Memory: 1 TB (16 x 64 GB 2Rx4 PC5-6400B-R)  
Storage: 1 x 1.92 TB NVME SSD  
Other: CPU Cooling: Air

## Software

OS: SUSE Linux Enterprise Server 15 SP6  
6.4.0-150600.21-default  
Compiler: C/C++: Version 2024.1 of Intel oneAPI DPC++/C++  
Compiler for Linux;  
Fortran: Version 2024.1 of Intel Fortran Compiler  
for Linux;  
Parallel: No  
Firmware: Version 03.02.01 released Apr-2025  
File System: xfs  
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 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    | 64     | 260        | 2470       | 260        | 2470       | <b>260</b>  | <b>2470</b> | 64     | 260        | 2470       | 260         | 2470       | <b>260</b>  | <b>2470</b> |
| 507.cactuBSSN_r | 64     | 120        | 677        | 120        | 677        | <b>120</b>  | <b>677</b>  | 32     | 56.0       | 723        | <b>55.9</b> | <b>724</b> | 55.9        | 725         |
| 508.namd_r      | 64     | 200        | 303        | 200        | 303        | <b>200</b>  | <b>303</b>  | 64     | 200        | 303        | 200         | 303        | <b>200</b>  | <b>303</b>  |
| 510.parest_r    | 64     | 700        | 239        | 700        | 239        | <b>700</b>  | <b>239</b>  | 32     | 338        | 248        | 338         | 248        | <b>338</b>  | <b>248</b>  |
| 511.povray_r    | 64     | 298        | 501        | <b>298</b> | <b>502</b> | 297         | 504         | 64     | 275        | 543        | 275         | 543        | <b>275</b>  | <b>543</b>  |
| 519.lbm_r       | 64     | <b>216</b> | <b>312</b> | 216        | 312        | 216         | 312         | 64     | <b>216</b> | <b>312</b> | 216         | 312        | 216         | 312         |
| 521.wrf_r       | 64     | 341        | 420        | 340        | 421        | <b>340</b>  | <b>421</b>  | 64     | 341        | 420        | 340         | 421        | <b>340</b>  | <b>421</b>  |
| 526.blender_r   | 64     | 216        | 452        | 214        | 455        | <b>214</b>  | <b>455</b>  | 64     | 216        | 452        | 214         | 455        | <b>214</b>  | <b>455</b>  |
| 527.cam4_r      | 64     | 207        | 541        | 214        | 524        | <b>211</b>  | <b>531</b>  | 64     | <b>207</b> | <b>540</b> | 208         | 537        | 206         | 544         |
| 538.imagick_r   | 64     | 90.8       | 1750       | 91.5       | 1740       | <b>90.9</b> | <b>1750</b> | 64     | 90.8       | 1750       | 91.5        | 1740       | <b>90.9</b> | <b>1750</b> |
| 544.nab_r       | 64     | 117        | 924        | <b>117</b> | <b>923</b> | 117         | 921         | 64     | 117        | 924        | <b>117</b>  | <b>923</b> | 117         | 921         |
| 549.fotonik3d_r | 64     | 518        | 482        | <b>518</b> | <b>481</b> | 519         | 480         | 64     | 518        | 482        | <b>518</b>  | <b>481</b> | 519         | 480         |
| 554.roms_r      | 64     | 435        | 234        | <b>435</b> | <b>234</b> | 434         | 234         | 64     | 435        | 234        | <b>435</b>  | <b>234</b> | 434         | 234         |

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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/CPU2017/lib/intel64:/home/CPU2017/je5.0.1-64"  
MALLOCONF = "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  
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

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)

(Continued on next page)



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## General Notes (Continued)

is mitigated in the system as tested and documented.

Yes: The test sponsor attests, as of date of publication, that CVE-2017-5715 (Spectre variant 2) is mitigated in the system as tested and documented.

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 configuration:  
ENERGY\_PERF\_BIAS\_CFG mode set to Performance

Sysinfo program /home/CPU2017/bin/sysinfo  
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197  
running on localhost Fri Jun 6 06:30:19 2025

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. 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 -a  
Linux localhost 6.4.0-150600.21-default #1 SMP PREEMPT\_DYNAMIC Thu May 16 11:09:22 UTC 2024 (36c1e09)  
x86\_64 x86\_64 x86\_64 GNU/Linux

2. w  
06:30:19 up 4:33, 1 user, load average: 40.43, 58.02, 61.45  
USER TTY FROM LOGIN@ IDLE JCPU PCPU WHAT  
root tty1 - 01:57 4:31m 1.91s 0.04s -bash

3. Username

(Continued on next page)



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## Platform Notes (Continued)

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) 4126415
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) 4126415
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 --define numcopies=64 -c
ic2024.1-lin-sapphirerapids-rate-20240308.cfg --define smt-on --define cores=32 --define physicalfirst
--define invoke_with_interleave --define drop_caches --tune base,peak -o all fprate
runcpu --nobuild --action validate --define default-platform-flags --define numcopies=64 --configfile
ic2024.1-lin-sapphirerapids-rate-20240308.cfg --define smt-on --define cores=32 --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/CPU2017.016/temlogs/preenv.fprate.016.0.log --lognum 016.0 --from_runcpu 2
specperl $SPEC/bin/sysinfo
$SPEC = /home/CPU2017
-----
```

```
-----
6. /proc/cpuinfo
model name      : Intel(R) Xeon(R) 6517P
vendor_id      : GenuineIntel
cpu family     : 6
model          : 173
stepping       : 1
microcode      : 0x1000380
bugs           : spectre_v1 spectre_v2 spec_store_bypass swapgs bhi
cpu cores      : 16
siblings       : 32
2 physical ids (chips)
64 processors (hardware threads)
physical id 0: core ids 0-15
physical id 1: core ids 0-15
physical id 0: apicids 0-31
physical id 1: apicids 128-159
Caution: /proc/cpuinfo data regarding chips, cores, and threads is not necessarily reliable, especially for
virtualized systems. Use the above data carefully.
-----
```

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

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## Platform Notes (Continued)

From lscpu from util-linux 2.39.3:

```
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): 64
On-line CPU(s) list: 0-63
Vendor ID: GenuineIntel
BIOS Vendor ID: Intel(R) Corporation
Model name: Intel(R) Xeon(R) 6517P
BIOS Model name: Intel(R) Xeon(R) 6517P CPU @ 3.2GHz
BIOS CPU family: 179
CPU family: 6
Model: 173
Thread(s) per core: 2
Core(s) per socket: 16
Socket(s): 2
Stepping: 1
CPU(s) scaling MHz: 19%
CPU max MHz: 4200.0000
CPU min MHz: 800.0000
BogoMIPS: 6400.00
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 vmx 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 tpr_shadow flexpriority ept vpid ept_ad fsgsbase
tsc_adjust bmi1 hle avx2 smep bmi2 erms invpcid rtm 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 hwp
hwp_act_window hwp_epp hwp_pkg_req vnmi 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
Virtualization: VT-x
L1d cache: 1.5 MiB (32 instances)
L1i cache: 2 MiB (32 instances)
L2 cache: 64 MiB (32 instances)
L3 cache: 144 MiB (2 instances)
NUMA node(s): 2
NUMA node0 CPU(s): 0-15,32-47
NUMA node1 CPU(s): 16-31,48-63
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
```

(Continued on next page)



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## Platform Notes (Continued)

Vulnerability Spec store bypass: Mitigation; Speculative Store Bypass disabled via prctl  
Vulnerability Spectre v1: Mitigation; usercopy/swaps barriers and \_\_user pointer sanitization  
Vulnerability Spectre v2: Mitigation; Enhanced / Automatic IBRS; IBPB conditional; RSB filling; PBRSE-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      | 1.5M     | 12   | Data        | 1     | 64    | 1        | 64             |
| L1i  | 64K      | 2M       | 16   | Instruction | 1     | 64    | 1        | 64             |
| L2   | 2M       | 64M      | 16   | Unified     | 2     | 2048  | 1        | 64             |
| L3   | 72M      | 144M     | 16   | Unified     | 3     | 73728 | 1        | 64             |

8. numactl --hardware

NOTE: a numactl 'node' might or might not correspond to a physical chip.

available: 2 nodes (0-1)  
node 0 cpus: 0-15,32-47  
node 0 size: 515567 MB  
node 0 free: 498348 MB  
node 1 cpus: 16-31,48-63  
node 1 size: 516062 MB  
node 1 free: 501158 MB  
node distances:  
node 0 1  
0: 10 21  
1: 21 10

9. /proc/meminfo

MemTotal: 1056389220 kB

10. who -r

run-level 3 Jun 6 01:57

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         | YaST2-Firstboot YaST2-Second-Stage apparmor auditd cron display-manager getty@ irqbalance issue-generator kbdsettings klog lvm2-monitor nscd nvme-fc-boot-connections nvmmf-autoconnect postfix purge-kernels rollback rsyslog smartd sshd systemd-pstore wicked wickedd-auto4 wickedd-dhcp4 wickedd-dhcp6 wickedd-nanny                                                                                                                                                                                                                          |
| enabled-runtime | systemd-remount-fs                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| disabled        | autofs autostart-initscripts blk-availability boot-sysctl ca-certificates chrony-wait chronyd console-getty cups cups-browsed debug-shell ebttables exchange-bmc-os-info firewallld fsidd gpm grub2-once haveged ipmi ipmievd issue-add-ssh-keys kexec-load lunmask man-db-create multipathd nfs nfs-blkmap rpcbind rpmconfigcheck rsyncd serial-getty@ smartd_generate_opts snmpd snmptrapd systemd-boot-check-no-failures systemd-confext systemd-network-generator systemd-sysexit systemd-time-wait-sync systemd-timesyncd udisks2 vncserver@ |
| indirect        | systemd-userdbd wickedd                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

(Continued on next page)



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## Platform Notes (Continued)

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

```
BOOT_IMAGE=/boot/vmlinuz-6.4.0-150600.21-default
root=UUID=9a795dfb-1ba6-4802-bd8a-006ca90ba081
splash=silent
mitigations=auto
quiet
security=apparmor
```

### 14. cpupower frequency-info

```
analyzing CPU 35:
  current policy: frequency should be within 800 MHz and 4.20 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          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+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
```

(Continued on next page)



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## Platform Notes (Continued)

os-release SUSE Linux Enterprise Server 15 SP6

### 19. Disk information

SPEC is set to: /home/CPU2017

| Filesystem     | Type | Size | Used | Avail | Use% | Mounted on |
|----------------|------|------|------|-------|------|------------|
| /dev/nvme0n1p2 | xfs  | 929G | 73G  | 857G  | 8%   | /          |

### 20. /sys/devices/virtual/dmi/id

Vendor: IEIT SYSTEMS  
Product: NF5466-M8-A0-R0-00  
Product Family: Not specified  
Serial: 01234567

### 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:

16x Samsung M321R8GA0PB2-CCPEC 64 GB 2 rank 6400

### 22. BIOS

(This section combines info from /sys/devices and dmidecode.)

BIOS Vendor: American Megatrends International, LLC.  
BIOS Version: 03.02.01  
BIOS Date: 04/03/2025

## 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 2024.1.0 Build 20240308  
Copyright (C) 1985-2024 Intel Corporation. All rights reserved.

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 2024.1.0 Build 20240308  
Copyright (C) 1985-2024 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 2024.1.0 Build 20240308  
Copyright (C) 1985-2024 Intel Corporation. All rights reserved.

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2024.1.0 Build 20240308  
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C++, C, Fortran | 507.cactuBSSN\_r(base, peak)

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Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2024.1.0 Build 20240308  
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Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2024.1.0 Build 20240308  
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Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2024.1.0 Build 20240308  
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|         |  |                          |                             |                        |
|---------|--|--------------------------|-----------------------------|------------------------|
| Fortran |  | 503.bwaves_r(base, peak) | 549.fotonik3d_r(base, peak) | 554.roms_r(base, peak) |
|---------|--|--------------------------|-----------------------------|------------------------|

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Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2024.1.0 Build 20240308  
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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

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

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# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2025 Standard Performance Evaluation Corporation

IEIT Systems Co., Ltd.

SPECrate®2017\_fp\_base = 542

meta brain NF5466G8 (Intel Xeon 6517P)

SPECrate®2017\_fp\_peak = 551

CPU2017 License: 3358

Test Sponsor: IEIT Systems Co., Ltd.

Tested by: IEIT Systems Co., Ltd.

Test Date: Jun-2025

Hardware Availability: Apr-2025

Software Availability: Jun-2024

## Base Portability Flags (Continued)

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

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

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# SPEC CPU®2017 Floating Point Rate Result

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SPECrate®2017\_fp\_base = 542

meta brain NF5466G8 (Intel Xeon 6517P)

SPECrate®2017\_fp\_peak = 551

CPU2017 License: 3358

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Tested by: IEIT Systems Co., Ltd.

Test Date: Jun-2025

Hardware Availability: Apr-2025

Software Availability: Jun-2024

## Base Optimization Flags (Continued)

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

## Peak Portability Flags

Same as Base Portability Flags

## Peak Optimization Flags

C benchmarks:

519.lbm\_r: basepeak = yes

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CPU2017 License: 3358

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Tested by: IEIT Systems Co., Ltd.

Test Date: Jun-2025

Hardware Availability: Apr-2025

Software Availability: Jun-2024

## Peak Optimization Flags (Continued)

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 -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

Fortran benchmarks:

503.bwaves\_r: basepeak = yes

549.fotonik3d\_r: basepeak = yes

554.roms\_r: basepeak = yes

Benchmarks using both Fortran and C:

521.wrf\_r: basepeak = yes

527.cam4\_r: -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++:

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)  
-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 -xsapphirerapids -Ofast

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# SPEC CPU®2017 Floating Point Rate Result

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Test Date: Jun-2025

Hardware Availability: Apr-2025

Software Availability: Jun-2024

## Peak Optimization Flags (Continued)

Benchmarks using Fortran, C, and C++ (continued):

```
-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-ic2024-official-linux64.html>

<http://www.spec.org/cpu2017/flags/IEIT-Platform-Settings-intel-V1.2.html>

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

<http://www.spec.org/cpu2017/flags/Intel-ic2024-official-linux64.xml>

<http://www.spec.org/cpu2017/flags/IEIT-Platform-Settings-intel-V1.2.xml>

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For questions about this result, please contact the tester. For other inquiries, please contact [info@spec.org](mailto:info@spec.org).

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