



# SPEC CPU®2017 Floating Point Rate Result

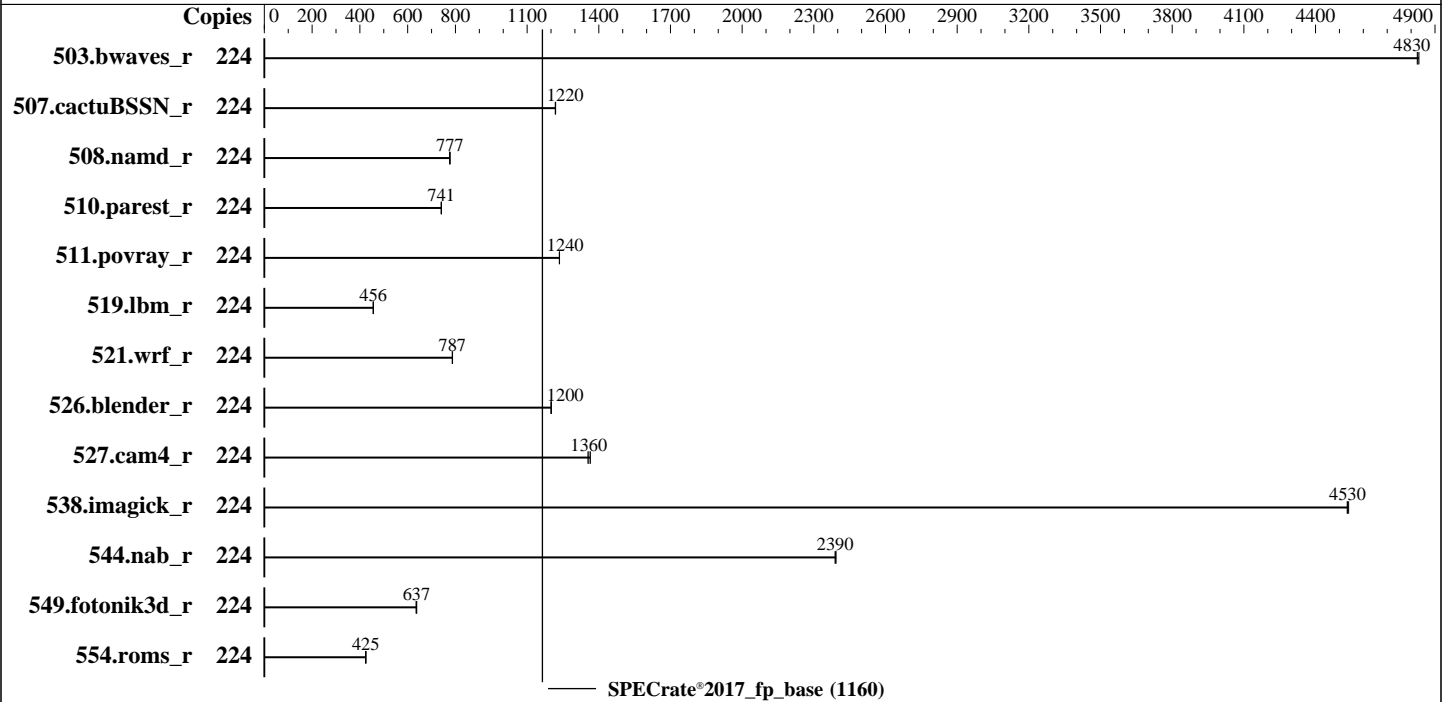
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New H3C Technologies Co., Ltd.  
H3C UniServer R4900 G6 Ultra (Intel Xeon Platinum 8570)

SPECrate®2017\_fp\_base = 1160  
SPECrate®2017\_fp\_peak = Not Run

CPU2017 License: 9066  
Test Sponsor: New H3C Technologies Co., Ltd.  
Tested by: New H3C Technologies Co., Ltd.

Test Date: Jun-2024  
Hardware Availability: Oct-2023  
Software Availability: Mar-2024



## Hardware

CPU Name: Intel Xeon Platinum 8570  
Max MHz: 4000  
Nominal: 2100  
Enabled: 128 cores, 2 chips, 2 threads/core  
Orderable: 1,2 chips  
Cache L1: 32 KB I + 48 KB D on chip per core  
L2: 2 MB I+D on chip per core  
L3: 300 MB I+D on chip per chip  
Other: None  
Memory: 512 GB (16 x 32 GB 2Rx8 PC5-5600B-R)  
Storage: 1 x 3.2 TB NVME SSD  
Other: CPU Cooling: Air

## Software

OS: SUSE Linux Enterprise Server 15 SP5 5.14.21-150500.53-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 6.10.38P60 released Apr-2024 BIOS  
File System: xfs  
System State: Run level 3 (multi-user)  
Base Pointers: 64-bit  
Peak Pointers: Not Applicable  
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    | 224    | 465         | 4830        | <b>465</b> | <b>4830</b> | 465        | 4830        |        |         |       |         |       |         |       |
| 507.cactuBSSN_r | 224    | <b>233</b>  | <b>1220</b> | 233        | 1220        | 233        | 1220        |        |         |       |         |       |         |       |
| 508.namd_r      | 224    | <b>274</b>  | <b>777</b>  | 274        | 777         | 274        | 775         |        |         |       |         |       |         |       |
| 510.parest_r    | 224    | 791         | 741         | <b>791</b> | <b>741</b>  | 791        | 741         |        |         |       |         |       |         |       |
| 511.povray_r    | 224    | 423         | 1240        | 424        | 1230        | <b>423</b> | <b>1240</b> |        |         |       |         |       |         |       |
| 519.lbm_r       | 224    | <b>518</b>  | <b>456</b>  | 517        | 456         | 518        | 456         |        |         |       |         |       |         |       |
| 521.wrf_r       | 224    | 638         | 787         | 637        | 788         | <b>637</b> | <b>787</b>  |        |         |       |         |       |         |       |
| 526.blender_r   | 224    | 284         | 1200        | <b>284</b> | <b>1200</b> | 284        | 1200        |        |         |       |         |       |         |       |
| 527.cam4_r      | 224    | 287         | 1360        | 289        | 1350        | <b>288</b> | <b>1360</b> |        |         |       |         |       |         |       |
| 538.imagick_r   | 224    | 123         | 4540        | 123        | 4530        | <b>123</b> | <b>4530</b> |        |         |       |         |       |         |       |
| 544.nab_r       | 224    | 158         | 2390        | <b>158</b> | <b>2390</b> | 158        | 2390        |        |         |       |         |       |         |       |
| 549.fotonik3d_r | 224    | <b>1370</b> | <b>637</b>  | 1369       | 638         | 1375       | 635         |        |         |       |         |       |         |       |
| 554.roms_r      | 224    | 837         | 425         | <b>837</b> | <b>425</b>  | 841        | 423         |        |         |       |         |       |         |       |

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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/speccpunew/lib/intel64:/home/speccpunew/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  
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  
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.

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## General Notes (Continued)

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 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:

SNC = Enable SNC2 (2-clusters)  
Power Performance Tuning = BIOS Controls EFB  
ENERGY\_PERF\_BIAS\_CFG mode = Performance

Sysinfo program /home/specpunew/bin/sysinfo  
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197  
running on localhost Sat Jun 29 09:44:18 2024

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 249 (249.16+suse.171.gdad0071f15)
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 5.14.21-150500.53-default #1 SMP PREEMPT_DYNAMIC Wed May 10 07:56:26 UTC 2023 (b630043)
x86_64 x86_64 x86_64 GNU/Linux
```

```
2. w
09:44:18 up 10:36, 2 users, load average: 0.00, 0.00, 0.00
USER  TTY      FROM          LOGIN@  IDLE   JCPU   PCPU   WHAT
root  tty1    -             23:35   16.00s  1.15s  0.01s  sh intrate.sh
root  pts/0   172.16.27.225 02:49   6:54m  0.03s  0.03s  -bash
```

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## Platform Notes (Continued)

### 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) 2060373
max locked memory      (kbytes, -l) 64
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) 2060373
virtual memory         (kbytes, -v) unlimited
file locks             (-x) unlimited
```

### 5. sysinfo process ancestry

```
/usr/lib/systemd/systemd --switched-root --system --deserialize 30
login -- root
-bash
sh intrate.sh
runcpu --nobuild --action validate --define default-platform-flags --define numcopies=224 -c
ic2024.1-lin-sapphirerapids-rate-20231213.cfg --define smt-on --define cores=112 --define physicalfirst
--define invoke_with_interleave --define drop_caches --tune base -o all fprate
runcpu --nobuild --action validate --define default-platform-flags --define numcopies=224 --configfile
ic2024.1-lin-sapphirerapids-rate-20231213.cfg --define smt-on --define cores=112 --define physicalfirst
--define invoke_with_interleave --define drop_caches --tune base --output_format all --nopower --runmode
rate --tune base --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 = /home/specpcunew
```

### 6. /proc/cpuinfo

```
model name      : INTEL(R) XEON(R) PLATINUM 8570
vendor_id      : GenuineIntel
cpu family     : 6
model         : 207
stepping      : 2
microcode     : 0x21000200
bugs          : spectre_v1 spectre_v2 spec_store_bypass swapgs eibrs_pbrsb
cpu cores     : 56
siblings      : 112
2 physical ids (chips)
224 processors (hardware threads)
physical id 0: core ids 0-55
physical id 1: core ids 0-55
physical id 0: apicids 0-111
physical id 1: apicids 128-239
Caution: /proc/cpuinfo data regarding chips, cores, and threads is not necessarily reliable, especially for
virtualized systems. Use the above data carefully.
```

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## Platform Notes (Continued)

-----  
7. lscpu

From lscpu from util-linux 2.37.4:

```

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):                224
On-line CPU(s) list:  0-223
Vendor ID:             GenuineIntel
Model name:            INTEL(R) XEON(R) PLATINUM 8570
CPU family:            6
Model:                 207
Thread(s) per core:   2
Core(s) per socket:   56
Socket(s):             2
Stepping:              2
CPU max MHz:           4000.0000
CPU min MHz:           800.0000
BogoMIPS:              4200.00
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 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
                      invpcid_single cdp_l2 ssbd mba ibrs ibpb stibp ibrs_enhanced tpr_shadow
                      vnmi 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 avx_vnni avx512_bf16 wbnoinvd dtherm ida arat pln pts hwp
                      hwp_act_window hwp_epp hwp_pkg_req 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 avx512_fp16
                      amx_tile flush_l1d arch_capabilities

```

```

Virtualization:       VT-x
L1d cache:            5.3 MiB (112 instances)
L1i cache:            3.5 MiB (112 instances)
L2 cache:             224 MiB (112 instances)
L3 cache:             600 MiB (2 instances)
NUMA node(s):        4
NUMA node0 CPU(s):  0-27,112-139
NUMA node1 CPU(s):  28-55,140-167
NUMA node2 CPU(s):  56-83,168-195
NUMA node3 CPU(s):  84-111,196-223
Vulnerability Itlb multihit: Not affected
Vulnerability L1tf:    Not affected
Vulnerability Mds:     Not affected
Vulnerability Meltdown: Not affected
Vulnerability Mmio stale data: Not affected
Vulnerability Retbleed: Not affected
Vulnerability Spec store bypass: Mitigation; Speculative Store Bypass disabled via prctl and seccomp
Vulnerability Spectre v1: Mitigation; usercopy/swapgs barriers and __user pointer sanitization
Vulnerability Spectre v2: Mitigation; Enhanced IBRS, IBPB conditional, RSB filling, PBRSE-eIBRS SW
                      sequence

```

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## Platform Notes (Continued)

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      | 5.3M     | 12   | Data        | 1     | 64     | 1        | 64             |
| L1i  | 32K      | 3.5M     | 8    | Instruction | 1     | 64     | 1        | 64             |
| L2   | 2M       | 224M     | 16   | Unified     | 2     | 2048   | 1        | 64             |
| L3   | 300M     | 600M     | 20   | Unified     | 3     | 245760 | 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: 0-27,112-139
node 0 size: 128535 MB
node 0 free: 115086 MB
node 1 cpus: 28-55,140-167
node 1 size: 129009 MB
node 1 free: 117941 MB
node 2 cpus: 56-83,168-195
node 2 size: 129009 MB
node 2 free: 117526 MB
node 3 cpus: 84-111,196-223
node 3 size: 128568 MB
node 3 free: 117450 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: 527486212 kB

10. who -r

run-level 3 Jun 28 23:08

11. Systemd service manager version: systemd 249 (249.16+suse.171.gdad0071f15)

| Default Target | Status  |
|----------------|---------|
| multi-user     | running |

12. Services, from systemctl list-unit-files

| STATE           | UNIT FILES  |
|-----------------|---|
| enabled         | YaST2-Firstboot YaST2-Second-Stage apparmor cron display-manager getty@ issue-generator kbdsettings klog lvm2-monitor nscd nvme-fc-boot-connections purge-kernels rollback rsyslog smartd sshd systemd-pstore wicked wickedd-auto4 wickedd-dhcp4 wickedd-dhcp6 wickedd-nanny  |
| enabled-runtime | systemd-remount-fs  |
| disabled        | auditd autofs autoyast-initscripts blk-availability boot-sysctl ca-certificates chrony-wait chronyd console-getty cups cups-browsed debug-shell ebttables exchange-bmc-os-info fancontrol firewallld gpm grub2-once haveged haveged-switch-root ipmi ipmievd irqbalance issue-add-ssh-keys kdump kdump-early kexec-load lm_sensors lunmask man-db-create multipathd nfs nfs-blkmap nmb nvme-fc-autoconnect postfix rpcbind rpmconfigcheck rsyncd serial-getty@ smartd_generate_opts smb snmpd snmptrapd sysstat systemd-boot-check-no-failures systemd-network-generator systemd-sysext |

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## Platform Notes (Continued)

indirect systemd-time-wait-sync systemd-timesyncd vncserver@  
pcscd wickedd

-----  
13. Linux kernel boot-time arguments, from /proc/cmdline  
BOOT\_IMAGE=/boot/vmlinuz-5.14.21-150500.53-default  
root=UUID=befabla9-6492-412a-9d0b-079466ad03eb  
splash=silent  
resume=/dev/disk/by-uuid/64b85326-8619-4fcb-8127-1e8683bd7471  
mitigations=auto  
quiet  
security=apparmor  
crashkernel=403M,high  
crashkernel=72M,low

-----  
14. cpupower frequency-info  
analyzing CPU 0:  
current policy: frequency should be within 800 MHz and 4.00 GHz.  
The governor "performance" 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 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

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## Platform Notes (Continued)

```
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 15 SP5

-----  
19. Disk information  
SPEC is set to: /home/speccpunew  
Filesystem Type Size Used Avail Use% Mounted on  
/dev/nvme0n1p5 xfs 522G 354G 169G 68% /home

-----  
20. /sys/devices/virtual/dmi/id  
Vendor: N/A  
Product: N/A  
Product Family: Rack  
Serial: N/A

-----  
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:  
8x Samsung M321R4GA3PB0-CWMCH 32 GB 2 rank 5600  
8x Samsung M321R4GA3PB0-CWMXH 32 GB 2 rank 5600

-----  
22. BIOS  
(This section combines info from /sys/devices and dmidecode.)  
BIOS Vendor: American Megatrends International, LLC.  
BIOS Version: 6.10.38P60  
BIOS Date: 04/03/2024  
BIOS Revision: 5.32

## Compiler Version Notes

=====  
C | 519.lbm\_r(base) 538.imagick\_r(base) 544.nab\_r(base)

-----  
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) 510.parest\_r(base)

-----  
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) 526.blender\_r(base)

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## Compiler Version Notes (Continued)

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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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-----

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

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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) 549.fotonik3d\_r(base) 554.roms\_r(base)  
-----

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=====  
Fortran, C | 521.wrf\_r(base) 527.cam4\_r(base)  
-----

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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



# SPEC CPU®2017 Floating Point Rate Result

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New H3C Technologies Co., Ltd.  
H3C UniServer R4900 G6 Ultra (Intel Xeon Platinum 8570)

SPECrate®2017\_fp\_base = 1160  
SPECrate®2017\_fp\_peak = Not Run

**CPU2017 License:** 9066  
**Test Sponsor:** New H3C Technologies Co., Ltd.  
**Tested by:** New H3C Technologies Co., Ltd.

**Test Date:** Jun-2024  
**Hardware Availability:** Oct-2023  
**Software Availability:** Mar-2024

## 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
```

### 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
```

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# SPEC CPU®2017 Floating Point Rate Result

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New H3C Technologies Co., Ltd.  
H3C UniServer R4900 G6 Ultra (Intel Xeon Platinum 8570)

SPECrate®2017\_fp\_base = 1160  
SPECrate®2017\_fp\_peak = Not Run

**CPU2017 License:** 9066  
**Test Sponsor:** New H3C Technologies Co., Ltd.  
**Tested by:** New H3C Technologies Co., Ltd.

**Test Date:** Jun-2024  
**Hardware Availability:** Oct-2023  
**Software Availability:** Mar-2024

## Base Optimization Flags (Continued)

Benchmarks using both C and C++ (continued):

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

[http://www.spec.org/cpu2017/flags/New\\_H3C-Platform-Settings-V1.0-SPR-RevD.html](http://www.spec.org/cpu2017/flags/New_H3C-Platform-Settings-V1.0-SPR-RevD.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/New\\_H3C-Platform-Settings-V1.0-SPR-RevD.xml](http://www.spec.org/cpu2017/flags/New_H3C-Platform-Settings-V1.0-SPR-RevD.xml)

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