



# SPEC CPU®2017 Floating Point Rate Result

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## xFusion

SPECrate®2017\_fp\_base = 1130

## FusionServer 1288 V8 (Intel Xeon 6766E)

SPECrate®2017\_fp\_peak = Not Run

CPU2017 License: 6488

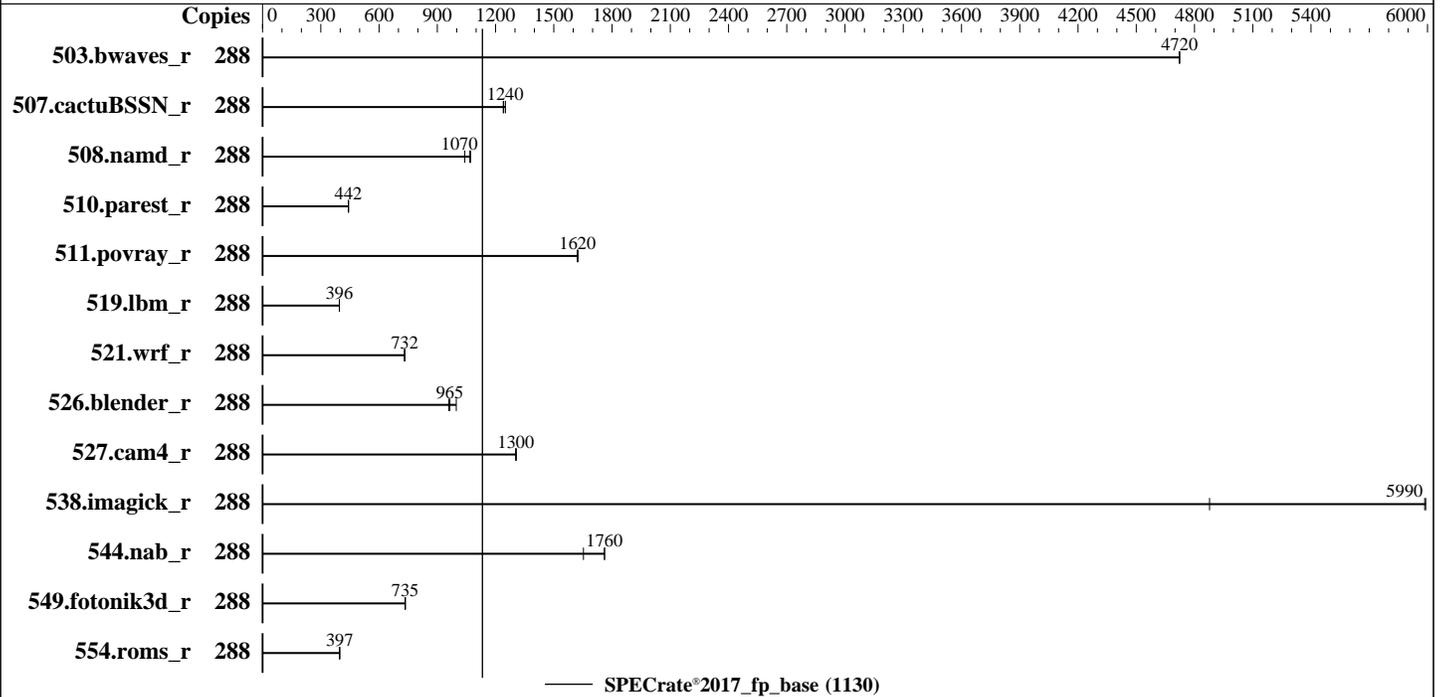
Test Sponsor: xFusion

Tested by: xFusion

Test Date: Feb-2026

Hardware Availability: May-2025

Software Availability: Apr-2024



### Hardware

CPU Name: Intel Xeon 6766E  
 Max MHz: 2700  
 Nominal: 1900  
 Enabled: 288 cores, 2 chips  
 Orderable: 1,2 chips  
 Cache L1: 64 KB I + 32 KB D on chip per core  
 L2: 144 MB I+D on chip per chip, 4 MB shared / 4 cores  
 L3: 108 MB I+D on chip per chip  
 Other: None  
 Memory: 512 GB (16 x 32 GB 2Rx8 PC5-6400B-R)  
 Storage: 1 x 1.92 TB SATA SSD  
 Other: CPU Cooling: Air

### Software

OS: Red Hat Enterprise Linux 9.4 (Plow)  
 5.14.0-427.13.1.el9\_4.x86\_64  
 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 01.31.01.19 released Dec-2025  
 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    | 288    | 612        | 4720        | <b>612</b>  | <b>4720</b> | 611         | 4720        |        |         |       |         |       |         |       |
| 507.cactuBSSN_r | 288    | <b>294</b> | <b>1240</b> | 291         | 1250        | 294         | 1240        |        |         |       |         |       |         |       |
| 508.namd_r      | 288    | 263        | 1040        | 255         | 1070        | <b>256</b>  | <b>1070</b> |        |         |       |         |       |         |       |
| 510.parest_r    | 288    | 1701       | 443         | 1705        | 442         | <b>1704</b> | <b>442</b>  |        |         |       |         |       |         |       |
| 511.povray_r    | 288    | <b>415</b> | <b>1620</b> | 415         | 1620        | 414         | 1620        |        |         |       |         |       |         |       |
| 519.lbm_r       | 288    | 767        | 396         | <b>767</b>  | <b>396</b>  | 768         | 395         |        |         |       |         |       |         |       |
| 521.wrf_r       | 288    | <b>881</b> | <b>732</b>  | 881         | 733         | 883         | 731         |        |         |       |         |       |         |       |
| 526.blender_r   | 288    | 457        | 959         | <b>455</b>  | <b>965</b>  | 440         | 998         |        |         |       |         |       |         |       |
| 527.cam4_r      | 288    | <b>386</b> | <b>1300</b> | 386         | 1300        | 386         | 1310        |        |         |       |         |       |         |       |
| 538.imagick_r   | 288    | <b>120</b> | <b>5990</b> | 147         | 4880        | 120         | 5990        |        |         |       |         |       |         |       |
| 544.nab_r       | 288    | 293        | 1650        | 275         | 1760        | <b>275</b>  | <b>1760</b> |        |         |       |         |       |         |       |
| 549.fotonik3d_r | 288    | 1527       | 735         | <b>1527</b> | <b>735</b>  | 1528        | 734         |        |         |       |         |       |         |       |
| 554.roms_r      | 288    | 1151       | 397         | 1155        | 396         | <b>1152</b> | <b>397</b>  |        |         |       |         |       |         |       |

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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"  
tuned-adm profile was set to throughput-performance using "tuned-adm profile throughput-performance"

### Environment Variables Notes

Environment variables set by runcpu before the start of the run:  
LD\_LIBRARY\_PATH = "/home/QYL/cpu2017/lib/intel64:/home/QYL/cpu2017/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)

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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-2017-5753 (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 configuration:  
Performance Profile Set to Performance  
Latency Optimized Mode Set to Enabled

Sysinfo program /home/QYL/cpu2017/bin/sysinfo  
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197  
running on localhost.localdomain Tue Feb 10 08:26:28 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. who -r
11. Systemd service manager version: systemd 252 (252-32.e19\_4)
12. Services, from systemctl list-unit-files
13. Linux kernel boot-time arguments, from /proc/cmdline
14. cpupower frequency-info
15. tuned-adm active
16. sysctl
17. /sys/kernel/mm/transparent\_hugepage
18. /sys/kernel/mm/transparent\_hugepage/khugepaged
19. OS release
20. Disk information
21. /sys/devices/virtual/dmi/id
22. dmidecode
23. BIOS

-----  
1. uname -a  
Linux localhost.localdomain 5.14.0-427.13.1.el9\_4.x86\_64 #1 SMP PREEMPT\_DYNAMIC Wed Apr 10 10:29:16 EDT 2024 x86\_64 x86\_64 x86\_64 GNU/Linux  
-----

2. w  
08:26:28 up 3:11, 1 user, load average: 87.63, 225.43, 263.41  
USER TTY LOGIN@ IDLE JCPU PCPU WHAT  
root tty1 05:15 3:10m 1.63s 0.07s sh run\_rate.sh

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### Platform Notes (Continued)

-----  
3. Username

From environment variable \$USER: root

-----  
4. ulimit -a

```
real-time non-blocking time (microseconds, -R) unlimited
core file size (blocks, -c) 0
data seg size (kbytes, -d) unlimited
scheduling priority (-e) 0
file size (blocks, -f) unlimited
pending signals (-i) 2059617
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) 2059617
virtual memory (kbytes, -v) unlimited
file locks (-x) unlimited
```

-----  
5. sysinfo process ancestry

```
/usr/lib/systemd/systemd --switched-root --system --deserialize 31
login -- root
-bash
sh loop.sh
sh run_rate.sh
runcpu --nobuild --action validate --define default-platform-flags --define numcopies=288 -c
ic2024.1-lin-sierraforest-rate-20240308.cfg --define smt-on --define peakfpcopies=144 --define
physicalfirst --define invoke_with_interleave --define drop_caches --reportable --tune base -o all fprate
runcpu --nobuild --action validate --define default-platform-flags --define numcopies=288 --configfile
ic2024.1-lin-sierraforest-rate-20240308.cfg --define smt-on --define peakfpcopies=144 --define
physicalfirst --define invoke_with_interleave --define drop_caches --reportable --tune base
--output_format all --nopower --runmode rate --tune base --size refrate fprate --nopreenv --note-preenv
--logfile $SPEC/tmp/CPU2017.002/temlogs/preenv.fprate.002.0.log --lognum 002.0 --from_runcpu 2
specperl $SPEC/bin/sysinfo
$SPEC = /home/QYL/cpu2017
```

-----  
6. /proc/cpuinfo

```
model name      : Intel(R) Xeon(R) 6766E
vendor_id      : GenuineIntel
cpu family     : 6
model          : 175
stepping      : 3
microcode     : 0x3000362
bugs           : spectre_v1 spectre_v2 spec_store_bypass swapsg
cpu cores     : 144
siblings      : 144
2 physical ids (chips)
288 processors (hardware threads)
physical id 0: core ids 0-143
physical id 1: core ids 0-143
physical id 0: apicids
0,2,4,6,8,10,12,14,16,18,20,22,24,26,28,30,32,34,36,38,40,42,44,46,48,50,52,54,56,58,60,62,64,66,68,70,72
```

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### Platform Notes (Continued)

, 74, 76, 78, 80, 82, 84, 86, 88, 90, 92, 94, 96, 98, 100, 102, 104, 106, 108, 110, 112, 114, 116, 118, 120, 122, 124, 126, 128, 130, 132, 134, 136, 138, 140, 142, 144, 146, 148, 150, 152, 154, 156, 158, 160, 162, 164, 166, 168, 170, 172, 174, 176, 178, 180, 182, 184, 186, 188, 190, 192, 194, 196, 198, 200, 202, 204, 206, 208, 210, 212, 214, 216, 218, 220, 222, 224, 226, 228, 230, 232, 234, 236, 238, 240, 242, 244, 246, 248, 250, 252, 254, 256, 258, 260, 262, 264, 266, 268, 270, 272, 274, 276, 278, 280, 282, 284, 286

physical id 1: apicids

512, 514, 516, 518, 520, 522, 524, 526, 528, 530, 532, 534, 536, 538, 540, 542, 544, 546, 548, 550, 552, 554, 556, 558, 560, 562, 564, 566, 568, 570, 572, 574, 576, 578, 580, 582, 584, 586, 588, 590, 592, 594, 596, 598, 600, 602, 604, 606, 608, 610, 612, 614, 616, 618, 620, 622, 624, 626, 628, 630, 632, 634, 636, 638, 640, 642, 644, 646, 648, 650, 652, 654, 656, 658, 660, 662, 664, 666, 668, 670, 672, 674, 676, 678, 680, 682, 684, 686, 688, 690, 692, 694, 696, 698, 700, 702, 704, 706, 708, 710, 712, 714, 716, 718, 720, 722, 724, 726, 728, 730, 732, 734, 736, 738, 740, 742, 744, 746, 748, 750, 752, 754, 756, 758, 760, 762, 764, 766, 768, 770, 772, 774, 776, 778, 780, 782, 784, 786, 788, 790, 792, 794, 796, 798

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 2.37.4:

```

Architecture:          x86_64
CPU op-mode(s):        32-bit, 64-bit
Address sizes:          52 bits physical, 48 bits virtual
Byte Order:             Little Endian
CPU(s):                 288
On-line CPU(s) list:   0-287
Vendor ID:              GenuineIntel
BIOS Vendor ID:        Intel(R) Corporation
Model name:             Intel(R) Xeon(R) 6766E
BIOS Model name:       Intel(R) Xeon(R) 6766E
CPU family:             6
Model:                  175
Thread(s) per core:    1
Core(s) per socket:    144
Socket(s):              2
Stepping:               3
BogoMIPS:               3800.00
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
                        cdp_l2 ssbd mba ibrs ibpb stibp ibrs_enhanced tpr_shadow flexpriority
                        ept vpid ept_ad fsgsbase tsc_adjust bmi1 avx2 smep bmi2 erms invpcid
                        cqm rdt_a rdseed adx smap clflushopt clwb intel_pt sha_ni xsaveopt
                        xsaves xgetbv1 xsaves cqm_llc cqm_occup_llc cqm_mbm_total cqm_mbm_local
                        split_lock_detect avx_vnni lam wbnoinvd dtherm ida arat pln pts vnni
                        umip pku ospke waitpkg gfni vaes vpclmulqdq tme rdpid bus_lock_detect
                        cldemote movdiri movdir64b enqcmd fsrm md_clear serialize pconfig
                        arch_lbr ibt flush_lld arch_capabilities

Virtualization:         VT-x
L1d cache:              9 MiB (288 instances)
L1i cache:              18 MiB (288 instances)
L2 cache:               288 MiB (72 instances)
L3 cache:               216 MiB (2 instances)
NUMA node(s):          2
NUMA node0 CPU(s):     0-143
NUMA node1 CPU(s):     144-287
Vulnerability Gather data sampling: Not affected
Vulnerability Itlb multihit: Not affected

```

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### Platform Notes (Continued)

|                                     |  |
|-------------------------------------|--|
| Vulnerability Lltf:                 | Not affected   |
| Vulnerability Mds:                  | Not affected   |
| Vulnerability Meltdown:             | Not affected   |
| Vulnerability Mmio stale data:      | 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/swaggs barriers and __user pointer sanitization                           |
| Vulnerability Spectre v2:           | Mitigation; Enhanced / Automatic IBRS, IBPB conditional, RSB filling, PBRBS-eIBRS Not affected |
| 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  | 32K      | 9M       | 8    | Data        | 1     | 64     | 1        | 64             |
| L1i  | 64K      | 18M      | 8    | Instruction | 1     | 128    | 1        | 64             |
| L2   | 4M       | 288M     | 16   | Unified     | 2     | 4096   | 1        | 64             |
| L3   | 108M     | 216M     | 12   | Unified     | 3     | 147456 | 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: 0-143
node 0 size: 256996 MB
node 0 free: 255447 MB
node 1 cpus: 144-287
node 1 size: 257946 MB
node 1 free: 256409 MB
node distances:
node  0  1
  0: 10 21
  1: 21 10

```

9. /proc/meminfo

MemTotal: 527302408 kB

10. who -r

run-level 3 Feb 10 05:14

11. Systemd service manager version: systemd 252 (252-32.e19\_4)

```

Default Target Status
multi-user      running

```

12. Services, from systemctl list-unit-files

| STATE           | UNIT FILES  |
|-----------------|---|
| enabled         | NetworkManager NetworkManager-dispatcher NetworkManager-wait-online auditd chronyd crond<br>dbus-broker getty@ insights-client-boot irqbalance kdump low-memory-monitor mdmonitor<br>microcode nis-domainname rhsmcertd rsyslog rtkit-daemon selinux-autorelabel-mark sshd sssd<br>systemd-boot-update systemd-network-generator tuned udisks2 upower |
| enabled-runtime | systemd-remount-fs  |
| disabled        | canberra-system-bootup canberra-system-shutdown canberra-system-shutdown-reboot<br>chrony-wait chronyd-restricted console-getty cpupower debug-shell dnf-system-upgrade<br>firewalld kvm_stat man-db-restart-cache-update nftables pesign rdisc rhcd rhsm rhsm-facts<br>rpmdb-rebuild selinux-check-proper-disable serial-getty@ sshd-keygen@         |

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### Platform Notes (Continued)

indirect systemd-boot-check-no-failures systemd-pstore systemd-sysext  
sssd-autofs sssd-kcm sssd-nss sssd-pac sssd-pam sssd-ssh sssd-sudo systemd-sysupdate  
systemd-sysupdate-reboot

-----  
13. Linux kernel boot-time arguments, from /proc/cmdline  
BOOT\_IMAGE=(hd0,gpt3)/boot/vmlinuz-5.14.0-427.13.1.el9\_4.x86\_64  
root=UUID=7d136b45-1b14-4f69-8f42-af96fcf5aac4  
ro  
crashkernel=1G-4G:192M,4G-64G:256M,64G-:512M  
resume=UUID=0cfdca5d-346e-4756-a6a6-914941d0559e

-----  
14. cpupower frequency-info  
analyzing CPU 91:  
Unable to determine current policy  
boost state support:  
Supported: yes  
Active: yes

-----  
15. tuned-adm active  
Current active profile: throughput-performance

-----  
16. 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 40  
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 10  
vm.watermark\_boost\_factor 15000  
vm.watermark\_scale\_factor 10  
vm.zone\_reclaim\_mode 0

-----  
17. /sys/kernel/mm/transparent\_hugepage  
defrag always defer defer+madvice [madvice] never  
enabled [always] madvice never  
hpage\_pmd\_size 2097152  
shmem\_enabled always within\_size advise [never] deny force

-----  
18. /sys/kernel/mm/transparent\_hugepage/khugepaged  
alloc\_sleep\_millisecs 60000  
defrag 1  
max\_ptes\_none 511  
max\_ptes\_shared 256  
max\_ptes\_swap 64

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### Platform Notes (Continued)

pages\_to\_scan 4096  
scan\_sleep\_millisecs 10000

-----  
19. OS release  
From /etc/\*-release /etc/\*-version  
os-release Red Hat Enterprise Linux 9.4 (Plow)  
redhat-release Red Hat Enterprise Linux release 9.4 (Plow)  
system-release Red Hat Enterprise Linux release 9.4 (Plow)

-----  
20. Disk information  
SPEC is set to: /home/QYL/cpu2017  
Filesystem Type Size Used Avail Use% Mounted on  
/dev/sda3 xfs 350G 34G 317G 10% /

-----  
21. /sys/devices/virtual/dmi/id  
Vendor: XFUSION  
Product: 1288 V8  
Product Family: Birch Stream

-----  
22. dmidecode  
Additional information from dmidecode 3.5 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:  
3x Samsung M321R4GA3EB2-CCPPC 32 GB 2 rank 6400  
1x Samsung M321R4GA3EB2-CCPWC 32 GB 2 rank 6400  
12x Samsung M321R4GA3EB2-CCPWF 32 GB 2 rank 6400

-----  
23. BIOS  
(This section combines info from /sys/devices and dmidecode.)  
BIOS Vendor: XFUSION  
BIOS Version: 01.31.01.19  
BIOS Date: 12/18/2025  
BIOS Revision: 1.19

### 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)

-----  
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# SPEC CPU®2017 Floating Point Rate Result

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**xFusion**

SPECrate®2017\_fp\_base = 1130

**FusionServer 1288 V8 (Intel Xeon 6766E)**

SPECrate®2017\_fp\_peak = Not Run

**CPU2017 License:** 6488  
**Test Sponsor:** xFusion  
**Tested by:** xFusion

**Test Date:** Feb-2026  
**Hardware Availability:** May-2025  
**Software Availability:** Apr-2024

## Compiler Version Notes (Continued)

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

-----  
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-----

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

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

-----  
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) 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

(Continued on next page)



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## Base Compiler Invocation (Continued)

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 -xsierraforest -Ofast -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-Wno-implicit-int -ljemalloc -L/usr/local/jemalloc64-5.0.1/lib
```

C++ benchmarks:

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

Fortran benchmarks:

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

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**CPU2017 License:** 6488

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**Test Date:** Feb-2026

**Hardware Availability:** May-2025

**Software Availability:** Apr-2024

## Base Optimization Flags (Continued)

Benchmarks using both C and C++:

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

Benchmarks using Fortran, C, and C++:

```
-w -std=c++14 -m64 -std=c11 -Wl,-z,muldefs -xsierraforest -Ofast
-ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -Wno-implicit-int -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/xFusion-Platform-Settings-GNR-V1.7.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/xFusion-Platform-Settings-GNR-V1.7.xml>

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