



# SPEC CPU®2017 Floating Point Speed Result

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## xFusion

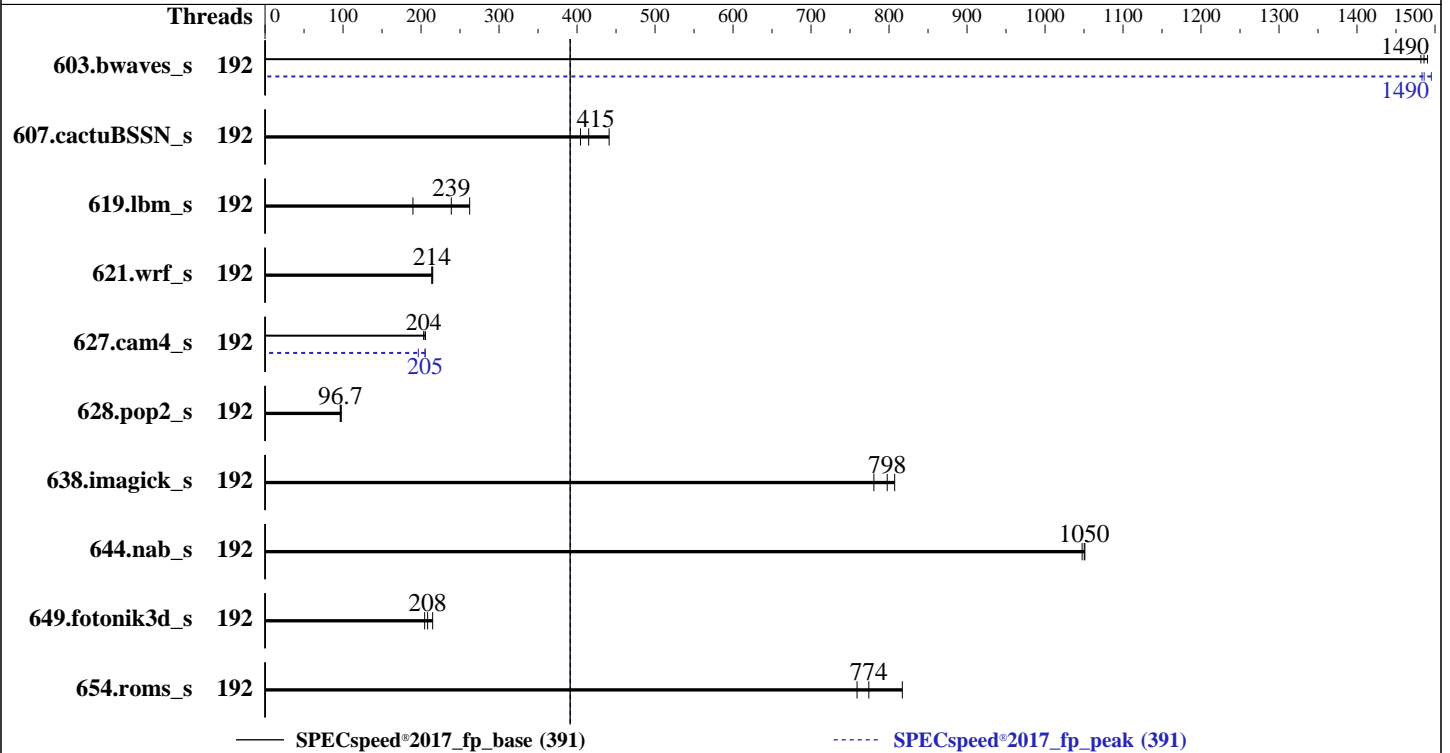
SPECspeed®2017\_fp\_base = 391

FusionServer 5885H V7 (Intel Xeon Platinum 8468H)

SPECspeed®2017\_fp\_peak = 391

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

Test Date: Dec-2024  
Hardware Availability: May-2023  
Software Availability: Dec-2023



### Hardware

CPU Name: Intel Xeon Platinum 8468H  
Max MHz: 3800  
Nominal: 2100  
Enabled: 192 cores, 4 chips  
Orderable: 1,2,4 chips  
Cache L1: 32 KB I + 48 KB D on chip per core  
L2: 2 MB I+D on chip per core  
L3: 105 MB I+D on chip per chip  
Other: None  
Memory: 1 TB (32 x 32 GB 2Rx8 PC5-4800B-R)  
Storage: 1 x 480 GB SATA SSD  
Other: CPU Cooling: Air

### Software

OS: Red Hat Enterprise Linux 9.0 (Plow)  
5.14.0-70.13.1.el9\_0.x86\_64  
Compiler: C/C++: Version 2024.0.2 of Intel oneAPI DPC++/C++  
Compiler for Linux;  
Fortran: Version 2024.0.2 of Intel Fortran  
Compiler for Linux;  
Parallel: Yes  
Firmware: Version 01.02.02.05 released Oct-2024  
File System: xfs  
System State: Run level 5 (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						
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
603.bwaves_s	192	39.6	1490	<b><u>39.7</u></b>	<b><u>1490</u></b>	39.8	1480	192	<b><u>39.7</u></b>	<b><u>1490</u></b>	39.5	1500	39.8	1480
607.cactuBSSN_s	192	41.2	404	<b><u>40.2</u></b>	<b><u>415</u></b>	37.8	441	192	41.2	404	<b><u>40.2</u></b>	<b><u>415</u></b>	37.8	441
619.lbm_s	192	27.6	190	<b><u>21.9</u></b>	<b><u>239</u></b>	20.0	262	192	27.6	190	<b><u>21.9</u></b>	<b><u>239</u></b>	20.0	262
621.wrf_s	192	<b><u>61.8</u></b>	<b><u>214</u></b>	61.8	214	61.5	215	192	<b><u>61.8</u></b>	<b><u>214</u></b>	61.8	214	61.5	215
627.cam4_s	192	43.6	204	<b><u>43.5</u></b>	<b><u>204</u></b>	43.1	206	192	<b><u>43.2</u></b>	<b><u>205</u></b>	43.2	205	45.1	196
628.pop2_s	192	<b><u>123</u></b>	<b><u>96.7</u></b>	121	97.8	123	96.4	192	<b><u>123</u></b>	<b><u>96.7</u></b>	121	97.8	123	96.4
638.imagick_s	192	17.9	807	18.5	781	<b><u>18.1</u></b>	<b><u>798</u></b>	192	17.9	807	18.5	781	<b><u>18.1</u></b>	<b><u>798</u></b>
644.nab_s	192	16.7	1050	<b><u>16.6</u></b>	<b><u>1050</u></b>	16.6	1050	192	16.7	1050	<b><u>16.6</u></b>	<b><u>1050</u></b>	16.6	1050
649.fotonik3d_s	192	44.5	205	<b><u>43.7</u></b>	<b><u>208</u></b>	42.4	215	192	44.5	205	<b><u>43.7</u></b>	<b><u>208</u></b>	42.4	215
654.roms_s	192	20.7	759	19.3	817	<b><u>20.3</u></b>	<b><u>774</u></b>	192	20.7	759	19.3	817	<b><u>20.3</u></b>	<b><u>774</u></b>

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Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

## 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:  
KMP\_AFFINITY = "granularity=fine,compact"  
LD\_LIBRARY\_PATH = "/home/cpu2017/lib/intel64:/home/cpu2017/je5.0.1-64"  
MALLOC\_CONF = "retain:true"  
OMP\_STACKSIZE = "192M"

## General Notes

Binaries compiled on a system with 2x Intel Xeon Platinum 8280M CPU + 384GB RAM  
memory using Redhat Enterprise Linux 8.0  
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)  
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 Load Balance  
SNC Set to Enable SNC2 (2-clusters)

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### Platform Notes (Continued)

Intel Hyper-Threading set to Disabled

Sysinfo program /home/cpu2017/bin/sysinfo  
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197  
running on localhost.localdomain Fri Dec 13 11:32:40 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 250 (250-6.e19\_0)
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 5.14.0-70.13.1.e19\_0.x86\_64 #1 SMP PREEMPT Thu Apr 14 12:42:38 EDT 2022 x86\_64  
x86\_64 x86\_64 GNU/Linux

-----  
2. w  
11:32:40 up 1 min, 1 user, load average: 0.69, 0.42, 0.17  
USER TTY LOGIN@ IDLE JCPU PCPU WHAT  
root pts/0 11:31 24.00s 0.81s 0.02s -bash

-----  
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) 4125064  
max locked memory (kbytes, -l) 64

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### Platform Notes (Continued)

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)	4125064
virtual memory	(kbytes, -v)	unlimited
file locks	(-x)	unlimited

#### 5. sysinfo process ancestry

```

/usr/lib/systemd/systemd rhgb --switched-root --system --deserialize 31
sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups
sshd: root [priv]
sshd: root@pts/0
-bash
/bin/sh ./test-speed-cpu2017.sh
runcpu --define default-platform-flags -c ic2024.0.2-lin-sapphirerapids-speed-20231213.cfg --define
cores=192 --tune base,peak -o all --define drop_caches fpspeed
runcpu --define default-platform-flags --configfile ic2024.0.2-lin-sapphirerapids-speed-20231213.cfg
--define cores=192 --tune base,peak --output_format all --define drop_caches --nopower --runmode speed
--tune base:peak --size refspeed fpspeed --nopreenv --note-preenv --logfile
$SPEC/tmp/CPU2017.042/templogs/preenv.fpspeed.042.0.log --lognum 042.0 --from_runcpu 2
specperl $SPEC/bin/sysinfo
$SPEC = /home/cpu2017

```

#### 6. /proc/cpuinfo

```

model name      : Intel(R) Xeon(R) Platinum 8468H
vendor_id      : GenuineIntel
cpu family     : 6
model          : 143
stepping      : 8
microcode     : 0x2b000590
bugs           : spectre_v1 spectre_v2 spec_store_bypass swapgs
cpu cores     : 48
siblings      : 48
4 physical ids (chips)
192 processors (hardware threads)
physical id 0: core ids 0-47
physical id 1: core ids 0-47
physical id 2: core ids 0-47
physical id 3: core ids 0-47
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
,74,76,78,80,82,84,86,88,90,92,94
physical id 1: apicids
128,130,132,134,136,138,140,142,144,146,148,150,152,154,156,158,160,162,164,166,168,170,172,174,176,178,1
80,182,184,186,188,190,192,194,196,198,200,202,204,206,208,210,212,214,216,218,220,222
physical id 2: apicids
256,258,260,262,264,266,268,270,272,274,276,278,280,282,284,286,288,290,292,294,296,298,300,302,304,306,3
08,310,312,314,316,318,320,322,324,326,328,330,332,334,336,338,340,342,344,346,348,350
physical id 3: apicids
384,386,388,390,392,394,396,398,400,402,404,406,408,410,412,414,416,418,420,422,424,426,428,430,432,434,4
36,438,440,442,444,446,448,450,452,454,456,458,460,462,464,466,468,470,472,474,476,478
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):                192
On-line CPU(s) list:  0-191
Vendor ID:             GenuineIntel
BIOS Vendor ID:       Intel(R) Corporation
Model name:            Intel(R) Xeon(R) Platinum 8468H
BIOS Model name:      Intel(R) Xeon(R) Platinum 8468H
CPU family:            6
Model:                 143
Thread(s) per core:   1
Core(s) per socket:   48
Socket(s):             4
Stepping:              8
Frequency boost:      enabled
CPU max MHz:           2101.0000
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_pdpelgb_rdtscp
                      lm_constant_tsc_art_arch_perfmon_pebs_bts_rep_good_nopl_xtopology
                      nonstop_tsc_cpuid_aperfperf_tsc_known_freq_pni_pclmulqdq_dtes64_monitor
                      ds_cpl_vmx_smx_est_tm2_ssse3_sdbg_fma_cx16_xtpr_pdcn_pcid_dca_sse4_1
                      sse4_2_x2apic_movbe_popcnt_tsc_deadline_timer_aes_xsaves_avx_f16c_rdrand
                      lahf_lm_abm_3dnowprefetch_cpuid_fault_epb_cat_13_cat_12_cdp_13
                      invpcid_single_intel_ppin_cdp_12_ssb_mba_ibrs_ibpb_stibp_ibrs_enhanced
                      tpr_shadow_vnmi_flexpriority_ept_vpid_ept_ad_fsgsbase_tsc_adjust_bmi1_avx2
                      smep_bmi2_erms_invpcid_cqm_rdt_a_avx512f_avx512dq_rdseed_adx_smmap
                      avx512ifma_clflushopt_clwb_intel_pt_avx512cd_sha_ni_avx512bw_avx512vl
                      xsavesopt_xsaves_xgetbv1_xsaves_cqm_llc_cqm_occup_llc_cqm_mbm_total
                      cqm_mbm_local_split_lock_detect_avx_vnni_avx512_bf16_wbnoinvd_dtherm_ida
                      arat_pln_pts_avx512vbmi_umip_pku_ospke_waitpkg_avx512_vbmi2_gfni_vaes
                      vpclmulqdq_avx512_vnni_avx512_bitalg_tme_avx512_vpoperndq_la57_rdpid
                      bus_lock_detect_cldemote_movdiri_movdir64b_enqcmd_fsrn_md_clear_serialize
                      tsxldtrk_pconfig_arch_lbr_avx512_fp16_amx_tile_flush_lld_arch_capabilities
Virtualization:        VT-x
L1d cache:             9 MiB (192 instances)
L1i cache:             6 MiB (192 instances)
L2 cache:              384 MiB (192 instances)
L3 cache:              420 MiB (4 instances)
NUMA node(s):         8
NUMA node0 CPU(s):    0-23
NUMA node1 CPU(s):    24-47
NUMA node2 CPU(s):    48-71
NUMA node3 CPU(s):    72-95
NUMA node4 CPU(s):    96-119
NUMA node5 CPU(s):    120-143
NUMA node6 CPU(s):    144-167
NUMA node7 CPU(s):    168-191
Vulnerability Itlb multihit: Not affected
Vulnerability L1tf:      Not affected
Vulnerability Mds:       Not affected
Vulnerability Meltdown:  Not affected
Vulnerability Spec store bypass: Mitigation; Speculative Store Bypass disabled via prctl

```

(Continued on next page)



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### Platform Notes (Continued)

Vulnerability Spectre v1: Mitigation; usercopy/swaps barriers and \_\_user pointer sanitization  
Vulnerability Spectre v2: Mitigation; Enhanced IBRS, IBPB conditional, RSB filling  
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	9M	12	Data	1	64	1	64
L1i	32K	6M	8	Instruction	1	64	1	64
L2	2M	384M	16	Unified	2	2048	1	64
L3	105M	420M	15	Unified	3	114688	1	64

8. numactl --hardware

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

```

available: 8 nodes (0-7)
node 0 cpus: 0-23
node 0 size: 128251 MB
node 0 free: 127389 MB
node 1 cpus: 24-47
node 1 size: 129018 MB
node 1 free: 128484 MB
node 2 cpus: 48-71
node 2 size: 129018 MB
node 2 free: 128641 MB
node 3 cpus: 72-95
node 3 size: 129018 MB
node 3 free: 128543 MB
node 4 cpus: 96-119
node 4 size: 129018 MB
node 4 free: 128410 MB
node 5 cpus: 120-143
node 5 size: 129018 MB
node 5 free: 128029 MB
node 6 cpus: 144-167
node 6 size: 129018 MB
node 6 free: 128481 MB
node 7 cpus: 168-191
node 7 size: 128962 MB
node 7 free: 128569 MB
node distances:
node  0  1  2  3  4  5  6  7
0:  10 12 21 21 21 21 21 21
1:  12 10 21 21 21 21 21 21
2:  21 21 10 12 21 21 21 21
3:  21 21 12 10 21 21 21 21
4:  21 21 21 21 10 12 21 21
5:  21 21 21 21 12 10 21 21
6:  21 21 21 21 21 21 10 12
7:  21 21 21 21 21 21 12 10

```

9. /proc/meminfo

MemTotal: 1056078236 kB

10. who -r

run-level 5 Dec 13 11:31

(Continued on next page)



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### Platform Notes (Continued)

11. Systemd service manager version: systemd 250 (250-6.e19\_0)  
Default Target Status  
graphical running

12. Services, from systemctl list-unit-files

STATE	UNIT FILES
enabled	ModemManager NetworkManager NetworkManager-dispatcher NetworkManager-wait-online accounts-daemon atd auditd avahi-daemon bluetooth crond cups dbus-broker firewallld gdm getty@ insights-client-boot irqbalance iscsi iscsi-onboot kdump libstoragemgmt low-memory-monitor lvm2-monitor mcelog mdmonitor microcode multipathd nis-domainname nvme-fc-boot-connections ostree-remount power-profiles-daemon qemu-guest-agent rhsmcertd rsyslog rtkit-daemon selinux-autorelabel-mark smartd sshd sssd switcheroo-control systemd-network-generator tuned udisks2 upower vgauthd vmttoolsd
enabled-runtime	systemd-remount-fs
disabled	arp-ethers blk-availability brltty canberra-system-bootup canberra-system-shutdown canberra-system-shutdown-reboot chrony-wait chronyd cni-dhcp console-getty cpupower cups-browsed dbus-daemon debug-shell dnsmasq hwloc-dump-hwdata iprdump iprinit iprupdate iscsid iscsiuiop kpatch kvm_stat ledmon man-db-restart-cache-update nftables nvme-autoconnect podman podman-auto-update podman-restart psacct ras-mc-ctl rasdaemon rdisc rhcd rhsm rhsm-facts rpmbd-rebuild serial-getty@ speech-dispatcherd sshd-keygen@ systemd-boot-check-no-failures systemd-pstore systemd-sysext wpa_supplicant
indirect	spice-vgagentd sssd-autofs sssd-kcm sssd-nss sssd-pac sssd-pam sssd-ssh sssd-sudo

13. Linux kernel boot-time arguments, from /proc/cmdline  
BOOT\_IMAGE=(hd0,gpt2)/vmlinuz-5.14.0-70.13.1.e19\_0.x86\_64  
root=/dev/mapper/rhel-root  
ro  
crashkernel=1G-4G:192M,4G-64G:256M,64G-:512M  
resume=/dev/mapper/rhel-swap  
rd.lvm.lv=rhel/root  
rd.lvm.lv=rhel/swap  
rhgb  
quiet  
nohz\_full=1-191

14. cpupower frequency-info

analyzing CPU 0:  
current policy: frequency should be within 800 MHz and 2.10 GHz.  
The governor "performance" may decide which speed to use within this range.  
boost state support:  
Supported: yes  
Active: yes

15. tuned-adm active

It seems that tuned daemon is not running, preset profile is not activated.  
Preset profile: latency-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

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### Platform Notes (Continued)

```

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

```

```

-----
17. /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

```

```

-----
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
pages_to_scan          4096
scan_sleep_millisecs  10000

```

```

-----
19. OS release
From /etc/*-release /etc/*-version
os-release      Red Hat Enterprise Linux 9.0 (Plow)
redhat-release  Red Hat Enterprise Linux release 9.0 (Plow)
system-release  Red Hat Enterprise Linux release 9.0 (Plow)

```

```

-----
20. Disk information
SPEC is set to: /home/cpu2017
Filesystem      Type      Size  Used Avail Use% Mounted on
/dev/mapper/rhel-home xfs      201G   24G  177G  12% /home

```

```

-----
21. /sys/devices/virtual/dmi/id
Vendor:          XFUSION
Product:         5885H V7
Product Family:  EagleStream
Serial:          202412131126

```

```

-----
22. dmidecode
Additional information from dmidecode 3.3 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:
  32x Samsung M321R4GA3BB6-CQKDG 32 GB 2 rank 4800

```

(Continued on next page)





# SPEC CPU®2017 Floating Point Speed Result

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## xFusion

SPECSpeed®2017\_fp\_base = 391

FusionServer 5885H V7 (Intel Xeon Platinum 8468H)

SPECSpeed®2017\_fp\_peak = 391

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

**Test Date:** Dec-2024  
**Hardware Availability:** May-2023  
**Software Availability:** Dec-2023

## Platform Notes (Continued)

-----  
23. BIOS  
(This section combines info from /sys/devices and dmidecode.)  
BIOS Vendor: XFUSION  
BIOS Version: 01.02.02.05  
BIOS Date: 10/17/2024

## Compiler Version Notes

=====  
C | 619.lbm\_s(base, peak) 638.imagick\_s(base, peak) 644.nab\_s(base, peak)

-----  
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2024.0.2 Build 20231213  
Copyright (C) 1985-2023 Intel Corporation. All rights reserved.

=====  
C++, C, Fortran | 607.cactuBSSN\_s(base, peak)

-----  
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2024.0.2 Build 20231213  
Copyright (C) 1985-2023 Intel Corporation. All rights reserved.  
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2024.0.2 Build 20231213  
Copyright (C) 1985-2023 Intel Corporation. All rights reserved.  
Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2024.0.2 Build 20231213  
Copyright (C) 1985-2023 Intel Corporation. All rights reserved.

=====  
Fortran | 603.bwaves\_s(base, peak) 649.fotonik3d\_s(base, peak) 654.roms\_s(base, peak)

-----  
Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2024.0.2 Build 20231213  
Copyright (C) 1985-2023 Intel Corporation. All rights reserved.

=====  
Fortran, C | 621.wrf\_s(base, peak) 627.cam4\_s(base, peak) 628.pop2\_s(base, peak)

-----  
Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2024.0.2 Build 20231213  
Copyright (C) 1985-2023 Intel Corporation. All rights reserved.  
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2024.0.2 Build 20231213  
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## Base Compiler Invocation

C benchmarks:  
icx

Fortran benchmarks:  
ifx

Benchmarks using both Fortran and C:  
ifx icx

(Continued on next page)



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xFusion

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Test Sponsor: xFusion  
Tested by: xFusion

Test Date: Dec-2024  
Hardware Availability: May-2023  
Software Availability: Dec-2023

## Base Compiler Invocation (Continued)

Benchmarks using Fortran, C, and C++:  
icpx icx ifx

## Base Portability Flags

```
603.bwaves_s: -DSPEC_LP64
607.cactuBSSN_s: -DSPEC_LP64
619.lbm_s: -DSPEC_LP64
621.wrf_s: -DSPEC_LP64 -DSPEC_CASE_FLAG -convert big_endian
627.cam4_s: -DSPEC_LP64 -DSPEC_CASE_FLAG
628.pop2_s: -DSPEC_LP64 -DSPEC_CASE_FLAG -convert big_endian
-assume byterecl
638.imagick_s: -DSPEC_LP64
644.nab_s: -DSPEC_LP64
649.fotonik3d_s: -DSPEC_LP64
654.roms_s: -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 -fiopenmp
-DSPEC_OPENMP -Wno-implicit-int -mprefer-vector-width=512
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

Fortran benchmarks:

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

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 -fiopenmp
-DSPEC_OPENMP -Wno-implicit-int -mprefer-vector-width=512
-nostandard-realloc-lhs -align array32byte -auto
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

Benchmarks using Fortran, C, and C++:

```
-w -std=c++14 -m64 -std=c11 -Wl,-z,muldefs -xsapphirerapids -Ofast
```

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# SPEC CPU®2017 Floating Point Speed Result

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**xFusion**

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SPECspeed®2017\_fp\_peak = 391

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

**Test Date:** Dec-2024  
**Hardware Availability:** May-2023  
**Software Availability:** Dec-2023

## Base Optimization Flags (Continued)

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

```
-ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -fiopenmp -DSPEC_OPENMP -Wno-implicit-int
-mprefer-vector-width=512 -nostandard-realloc-lhs -align array32byte
-auto -L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

## Peak Compiler Invocation

C benchmarks:

icx

Fortran benchmarks:

ifx

Benchmarks using both Fortran and C:

ifx icx

Benchmarks using Fortran, C, and C++:

icpx icx ifx

## Peak Portability Flags

Same as Base Portability Flags

## Peak Optimization Flags

C benchmarks:

619.lbm\_s: basepeak = yes

638.imagick\_s: basepeak = yes

644.nab\_s: basepeak = yes

Fortran benchmarks:

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

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# SPEC CPU®2017 Floating Point Speed Result

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## xFusion

SPECspeed®2017\_fp\_base = 391

FusionServer 5885H V7 (Intel Xeon Platinum 8468H)

SPECspeed®2017\_fp\_peak = 391

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

**Test Date:** Dec-2024  
**Hardware Availability:** May-2023  
**Software Availability:** Dec-2023

## Peak Optimization Flags (Continued)

603.bwaves\_s (continued):  
-ljemalloc

649.fotonik3d\_s: basepeak = yes

654.roms\_s: basepeak = yes

Benchmarks using both Fortran and C:

621.wrf\_s: basepeak = yes

627.cam4\_s: -w -m64 -std=c11 -Wl,-z,muldefs -xsapphirerapids -Ofast  
-ffast-math -flto -mfpmath=sse -funroll-loops  
-qopt-mem-layout-trans=4 -fiopenmp -DSPEC\_OPENMP  
-Wno-implicit-int -mprefer-vector-width=512  
-nostandard-realloc-lhs -align array32byte -auto  
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

628.pop2\_s: basepeak = yes

Benchmarks using Fortran, C, and C++:

607.cactuBSSN\_s: basepeak = yes

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-SPR-V1.1-revC.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-SPR-V1.1-revC.xml>

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