xFusion

FusionServer 2288H V7 (Intel Xeon Gold 6414U)

CPU2017 License: 6488
Test Sponsor: xFusion
Tested by: xFusion
CPU Name: Intel Xeon Gold 6414U
Max MHz: 3400
Orderable: 1 chip
Enabled: 32 cores, 1 chip, 2 threads/core
Cache L1: 32 KB I + 48 KB D on chip per core
L2: 2 MB I+D on chip per core
L3: 60 MB I+D on chip per chip
Memory: 256 GB (8 x 32 GB 2Rx8 PC5-4800B-R)
Storage: 1 x 1920 GB SATA SSD

Software
OS: Red Hat Enterprise Linux release 9.0 (Plow) 5.14.0-70.13.1.el9_0.x86_64
Compiler: C/C++: Version 2023.0 of Intel oneAPI DPC++/C++ Compiler for Linux;
Fortran: Version 2023.0 of Intel Fortran Compiler for Linux;
Firmware: No
File System: xfs
System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: 64-bit
Power Management: BIOS and OS set to prefer performance at the cost of additional power usage

Hardware

SPEC®2017_fp_peak = 347
SPEC®2017_fp_base = 346

SPECrate®2017_fp_peak = 347
SPECrate®2017_fp_base = 346

503.bwaves_r 64
507.cactuBSSN_r 64
508.namd_r 64
510.parest_r 64
511.povray_r 64
519.lbm_r 64
521.wrf_r 64
526.blender_r 64
527.cam4_r 64
538.imagick_r 64
544.nab_r 64
549.fotonik3d_r 64
554.roms_r 64

Caches:

- L1: 32 KB I + 48 KB D on chip per core
- L2: 2 MB I+D on chip per core
- L3: 60 MB I+D on chip per core

Memory:
256 GB (8 x 32 GB 2Rx8 PC5-4800B-R)

Storage:
1 x 1920 GB SATA SSD

Other:
None

Test Date: Aug-2023
Hardware Availability: Jan-2023
Software Availability: Dec-2022

xFusion
## SPEC CPU®2017 Floating Point Rate Result

**xFusion**

FusionServer 2288H V7 (Intel Xeon Gold 6414U)

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
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</thead>
<tbody>
<tr>
<td>503.bwaves_r</td>
<td>64</td>
<td>357</td>
<td>1800</td>
<td><strong>358</strong></td>
<td><strong>1790</strong></td>
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<td>1790</td>
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<td>507.cactuBSSN_r</td>
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<td><strong>196</strong></td>
<td><strong>413</strong></td>
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<td>413</td>
<td>199</td>
<td>407</td>
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<tr>
<td>508.namd_r</td>
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<td>316</td>
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<td>510.parest_r</td>
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<td><strong>183</strong></td>
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<tr>
<td>511.povray_r</td>
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<td><strong>310</strong></td>
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<td>311</td>
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<tr>
<td>519.lbm_r</td>
<td>64</td>
<td>319</td>
<td>212</td>
<td><strong>318</strong></td>
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<tr>
<td>521.wrf_r</td>
<td>64</td>
<td>499</td>
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<td><strong>286</strong></td>
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<tr>
<td>526.blender_r</td>
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<td><strong>302</strong></td>
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<tr>
<td>527.cam4_r</td>
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<td>326</td>
<td>343</td>
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<td><strong>345</strong></td>
<td>316</td>
<td>354</td>
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<tr>
<td>538.imagick_r</td>
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<tr>
<td>544.nab_r</td>
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<tr>
<td>549.fotonik3d_r</td>
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<td>554.roms_r</td>
<td>64</td>
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<td><strong>150</strong></td>
<td>677</td>
<td>150</td>
<td>682</td>
<td>149</td>
</tr>
</tbody>
</table>

**SPECrate®2017_fp_base = 346**

**SPECrate®2017_fp_peak = 347**

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/spec2017-1.1.9-ic2023/lib/intel64://home/spec2017-1.1.9-ic2023/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.

(Continued on next page)
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

Platform Notes

BIOS configuration:
Performance Profile Set to Performance
SNC Set to Enable SNC4 (4-clusters)

Sysinfo program /home/spec2017-1.1.9-ic2023/bin/sysinfo
Rev: r6732 of 2022-11-07 fe91c89b7ed5c3ae2c92cc097bec197
running on localhost.localdomain Wed Aug  9 22:41:00 2023

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

-------------
1. uname -a
2. w
3. Username
4. ulimit -a
5. sysinfo process ancestry
6. /proc/cpuinfo
7. lsmp
8. numactl --hardware
9. /proc/meminfo
10. who -r
11. systemd service manager version: systemd 250 (250-6.el9_0)
12. Failed units, from systemctl list-units --state=failed
13. Services, from systemctl list-unit-files
14. Linux kernel boot-time arguments, from /proc/cmdline
15. cpupower frequency-info
16. tuned-adm active
17. sysctl
18. /sys/kernel/mm/transparent_hugepage
19. /sys/kernel/mm/transparent_hugepage/khugepaged
20. OS release
21. Disk information
22. /sys/devices/virtual/dmi/id
23. dmidecode
24. 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 GNU/Linux

-------------
2. w
22:41:00 up  6:30,  1 user,  load average: 16.71, 48.55, 58.07
USER   TTY LOGIND IDLE JCPU PCPU WHAT
root tty1 16:19  6:21m 1.35s  0.07s -bash

(Continued on next page)
Platforms 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) 1028033
   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) 1028033
   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
   -bash
   runcpu --define default-platform-flags --copies 64 --configfile ic2023.0-lin-sapphirerapids-rate-20221201.cfg --define smt-on --define cores=32 --define physicalfirst --define invoke_with_interleave --define drop_caches --tune base:peak --iterations 3 --o all fprate
   specperl $SPEC/bin/sysinfo
   $SPEC = /home/spec2017-1.1.9-ic2023

6. /proc/cpuinfo
   model name : Intel(R) Xeon(R) Gold 6414U
   vendor_id : GenuineIntel
   cpu family : 6
   model : 143
   stepping : 8
   microcode : 0x2b000111
   bugs : spectre_v1 spectre_v2 spec_store_bypass swaps
   cpu cores : 32
   siblings : 64
   1 physical ids (chips)
   64 processors (hardware threads)
   physical id 0: core ids 0-31
   physical id 0: apicids 0-63
   Caution: /proc/cpuinfo data regarding chips, cores, and threads is not necessarily reliable, especially for virtualized systems. Use the above data carefully.

(Continued on next page)
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):               64
On-line CPU(s) list:   0-63
Vendor ID:             GenuineIntel
BIOS Vendor ID:        Intel(R) Corporation
Model name:            Intel(R) Xeon(R) Gold 6414U
BIOS Model name:       Intel(R) Xeon(R) Gold 6414U
CPU family:            6
Model:                 143
Thread(s) per core:    2
Core(s) per socket:    32
Socket(s):             1
Stepping:              8
BogoMIPS:              4000.00

Flags:                 fpu vme de pse tsc msr pae mca cmov pat pse36
                      clflush dts acpi mmx fxsr sse sse2 ss ht tm pbe syscall nx pdpe1gb
                      rdscp 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 xptr pdcm pcid dca
                      ssse4_1 ssse4_2 x2apic movbe popcnt tsc_deadline_timer aes xsave
                      avx f16c rdrand lahf_lm abb 3nowprefetch cpuid_fault epb cat_l3
class l2 invpcid_single intel_pinfo cpd_l2 sdbb mda ibrs ibpb ibrs Enhanced
                      tpr_shadow vnmi flexpriority ept vpid ept_ad fsgsbase tsc_adjust
                      bmi1 avx2 smap avx512ifma clflushopt clwb intel_pt avx512cd
                      sha_ni avx512bw avx512vli xsaveopt xsaveopt 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_vmbmi2 gfnl vaes vpcmtdq avx512_vnni
                      avx512_bitalg tme avx512_vpopcntdq ia57 rdpid bus_lock_detect
                      cldemote movdiri movdir64b enqcmd md_clear serialize tsxtdtrk
                      pconfig arch_lbr avx512_fp16
                      amx_tile flush_l1d arch_capabilities

Virtualization:        VT-x
L1d cache:             1.5 MiB (32 instances)
L1i cache:             1 MiB (32 instances)
L2 cache:              64 MiB (32 instances)
L3 cache:              60 MiB (1 instance)
NUMA node(s):          4
NUMA node0 CPU(s):     0-7,32-39
NUMA node1 CPU(s):     8-15,40-47
NUMA node2 CPU(s):     16-23,48-55
NUMA node3 CPU(s):     24-31,56-63
Vulnerability Itlb multihit: Not affected
Vulnerability L1t:     Not affected
Vulnerability Mds:     Not affected
Vulnerability Meltdown: Not affected
Vulnerability Spec store bypass: Mitigation; Speculative Store Bypass disabled via prctl
Vulnerability Spectre v1: Mitigation; usercopy/swaps barriers and __user pointer sanitation
Vulnerability Spectre v2: Mitigation; Enhanced IBRS, IBPB conditional, RSB filling
Vulnerability Srbds:   Not affected
Vulnerability Tax async abort: Not affected

From lscpu --cache:

NAME ONE-SIZE ALL-SIZE TYPE LEVEL SETS PHY-LINE COHERENCY-SIZE

(Continued on next page)
SPEC CPU®2017 Floating Point Rate Result

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FusionServer 2288H V7 (Intel Xeon Gold 6414U)

SPECrate®2017_fp_base = 346
SPECrate®2017_fp_peak = 347

CPU2017 License: 6488
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Tested by: xFusion
Test Date: Aug-2023
Hardware Availability: Jan-2023
Software Availability: Dec-2022

Platform Notes (Continued)

L1d  48K  1.5M  12 Data   1  64   1    64
L1i  32K     1M    8 Instruction 1  64   1    64
L2   2M     64M   16 Unified  2 2048   1    64
L3   60M    60M   15 Unified  3  65536  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: 0-7,32-39
node 0 size: 63570 MB
node 0 free: 54117 MB
node 1 cpus: 8-15,40-47
node 1 size: 64508 MB
node 1 free: 57072 MB
node 2 cpus: 16-23,48-55
node 2 size: 64508 MB
node 2 free: 56988 MB
node 3 cpus: 24-31,56-63
node 3 size: 64461 MB
node 3 free: 50705 MB
node distances:
node   0   1   2   3
0:  10  12  12  12
1:  12  10  12  12
2:  12  12  10  12
3:  12  12  12  10

9. /proc/meminfo
MemTotal: 263217632 kB

10. who -r
run-level 3 Aug 9 16:10

11. Systemd service manager version: systemd 250 (250-6.el9_0)
Default Target Status
multi-user degraded

12. Failed units, from systemctl list-units --state=failed
UNIT LOAD ACTIVE SUB DESCRIPTION
* sep5.service loaded failed failed systemd script to load sep5 driver at boot time

13. Services, from systemctl list-unit-files
STATE FILES
enabled NetworkManager NetworkManager-dispatcher NetworkManager-wait-online auditd chronyd crond
dbus-broker getty@ irqbalance kdump lvm2-monitor mdmonitor microcode nis-domainname
rshmcertd rasdolog selinux-autorelabel-mark sep5 sshd sssd sysstat
systemd-network-generator tuned udisks2 upower
enabled-runtime systemd-remount-fs
disabled arps-ethers blk-availability canberra-system-bootup canberra-system-shutdown
canberra-system-shutdown-reboot chrony-wait console-getty cpupower debug-shell firewalld
dkv-mstat man-db-restart-cache-update nftables powertop rdisc rhsm rhsm-facts rpmdb-rebuild
serial-getty@ sshd-keygen@ systemd-boot-check-no-failures systemd-pstore systemd-sysext
indirect sssd-autofs sssd-kcm sssd-nss sssd-pac sssd-pam sssd-sh sssd-sudo

(Continued on next page)
**SPEC CPU®2017 Floating Point Rate Result**

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FusionServer 2288H V7 (Intel Xeon Gold 6141U)

<table>
<thead>
<tr>
<th>SPECrate®2017_fp_base = 346</th>
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<tbody>
<tr>
<td>SPECrate®2017_fp_peak = 347</td>
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</table>

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**Platform Notes (Continued)**

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

```
BOOT_IMAGE=(hd0,gpt2)/vmlinuz-5.14.0-70.13.1.el9_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
```

---

15. cpupower frequency-info

```
analyzing CPU 0:
   Unable to determine current policy
   boost state support:
   Supported: yes
   Active: yes
```

---

16. tuned-adm active

```
Current active profile: throughput-performance
```

---

17. 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
```

---

18. /sys/kernel/mm/transparent_hugepage

```
defrag  always defer+madvise [madvise] never
enabled [always] madvise never
hpage_pmd_size  2097152
shmem_enabled   always within_size advise [never] deny force
```

---

19. /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
```

(Continued on next page)
Platform Notes (Continued)

20. 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)

21. Disk information
SPEC is set to: /home/spec2017-1.1.9-ic2023
Filesystem Type Size Used Avail Use% Mounted on
/dev/mapper/rhel-home xfs 1.7T 126G 1.6T 8% /home

22. /sys/devices/virtual/dmi/id
Vendor: XFUSION
Product: 2288H V7
Product Family: Eagle Stream
Serial: serial

23. 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:
8x Samsung M321R4GA3BB6-CQ6DG 32 GB 2 rank 4800

24. BIOS
(This section combines info from /sys/devices and dmidecode.)
BIOS Vendor: XFUSION
BIOS Version: 2.00.55
BIOS Date: 03/07/2023
BIOS Revision: 0.55

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 2023.0.0 Build 20221201
Copyright (C) 1985–2022 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 2023.0.0 Build 20221201
Copyright (C) 1985–2022 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 2023.0.0 Build 20221201

**Spec CPU® 2017 Floating Point Rate Result**

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**Compiler Version Notes (Continued)**

Copyright (C) 1985-2022 Intel Corporation. All rights reserved.

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2023.0.0 Build 20221201
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---

**Fortran, C | 503.bwaves_r(base, peak) 549.fotonik3d_r(base, peak) 554.roms_r(base, peak)**

---

**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`
- `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
```

(Continued on next page)
**SPEC CPU®2017 Floating Point Rate Result**

xFusion

FusionServer 2288H V7 (Intel Xeon Gold 6414U)

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECrate®2017_fp_base</td>
<td>346</td>
</tr>
<tr>
<td>SPECrate®2017_fp_peak</td>
<td>347</td>
</tr>
</tbody>
</table>

**CPU2017 License:** 6488  
**Test Sponsor:** xFusion  
**Tested by:** xFusion  
**Test Date:** Aug-2023  
**Hardware Availability:** Jan-2023  
**Software Availability:** Dec-2022

---

**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 -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`

(Continued on next page)
xFusion
FusionServer 2288H V7 (Intel Xeon Gold 6141U)

SPECrate®2017_fp_base = 346
SPECrate®2017_fp_peak = 347

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

Test Date: Aug-2023
Hardware Availability: Jan-2023
Software Availability: Dec-2022

Peak Optimization Flags (Continued)

538.imagick_r.basepeak = yes

544.nab_r.basepeak = yes

C++ benchmarks:

508.namd_r.basepeak = yes


Fortran benchmarks:

503.bwaves_r.basepeak = yes

549.fotonik3d_r.basepeak = yes

554.roms_r.basepeak = yes

Benchmarks using both Fortran and C:


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.profdata(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++:

507.cactuBSSN_r.basepeak = yes
## SPEC CPU®2017 Floating Point Rate Result

**xFusion**

FusionServer 2288H V7 (Intel Xeon Gold 6414U)

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The flags files that were used to format this result can be browsed at:

- [http://www.spec.org/cpu2017/flags/Intel-ic2023-official-linux64.html](http://www.spec.org/cpu2017/flags/Intel-ic2023-official-linux64.html)

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

- [http://www.spec.org/cpu2017/flags/Intel-ic2023-official-linux64.xml](http://www.spec.org/cpu2017/flags/Intel-ic2023-official-linux64.xml)

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

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