## SPEC CPU®2017 Integer Rate Result

**xFusion**

**FusionServer 5288 V7 (Intel Xeon Platinum 8460Y+)**

<table>
<thead>
<tr>
<th>SPECrate®2017_int_base</th>
<th>717</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECrate®2017_int_peak</td>
<td>740</td>
</tr>
</tbody>
</table>

### CPU2017 License
- xFusion

### Test Sponsor
- xFusion

### Tested by
- xFusion

<table>
<thead>
<tr>
<th>Test Date</th>
<th>Jun-2023</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hardware Availability</td>
<td>Jan-2023</td>
</tr>
<tr>
<td>Software Availability</td>
<td>Dec-2022</td>
</tr>
</tbody>
</table>

### Copies

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
</tr>
</thead>
<tbody>
<tr>
<td>perlbench_r</td>
<td>160</td>
</tr>
<tr>
<td>gcc_r</td>
<td>160</td>
</tr>
<tr>
<td>mcf_r</td>
<td>160</td>
</tr>
<tr>
<td>omnetpp_r</td>
<td>160</td>
</tr>
<tr>
<td>xalancbmk_r</td>
<td>160</td>
</tr>
<tr>
<td>x264_r</td>
<td>160</td>
</tr>
<tr>
<td>deepsjeng_r</td>
<td>160</td>
</tr>
<tr>
<td>leela_r</td>
<td>160</td>
</tr>
<tr>
<td>exchange2_r</td>
<td>160</td>
</tr>
<tr>
<td>xz_r</td>
<td>160</td>
</tr>
</tbody>
</table>

### SPECrate®2017_int_base (717)

### SPECrate®2017_int_peak (740)

### Hardware
- **CPU Name:** Intel Xeon Platinum 8460Y+
- **Max MHz:** 3700
- **Nominal:** 2000
- **Enabled:** 80 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:** 105 MB I+D on chip per chip
- **Other:** None
- **Memory:** 512 GB (16 x 32 GB 2Rx8 PC5-4800B-R)
- **Storage:** 1 x 1920 GB SATA SSD
- **Other:** None

### 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;
- **Parallel:** No
- **Firmware:** Version 2.00.55 Released Mar-2023
- **File System:** xfs
- **System State:** Run level 3 (multi-user)
- **Base Pointers:** 64-bit
- **Peak Pointers:** 32/64-bit
- **Other:** jemalloc memory allocator V5.0.1
- **Power Management:** BIOS and OS set to prefer performance at the cost of additional power usage
xFusion

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<table>
<thead>
<tr>
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**SPECrate®2017_int_base = 717**

**SPECrate®2017_int_peak = 740**

**Results Table**

<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>500.perlbench_r</td>
<td>160</td>
<td>479</td>
<td>531</td>
<td>479</td>
<td>531</td>
<td></td>
<td></td>
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<tr>
<td>502.gcc_r</td>
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<td>381</td>
<td>594</td>
<td>382</td>
<td>593</td>
<td></td>
<td></td>
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<tr>
<td>505.mcf_r</td>
<td>160</td>
<td>230</td>
<td>1130</td>
<td>231</td>
<td>1120</td>
<td></td>
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<tr>
<td>520.omnetpp_r</td>
<td>160</td>
<td>424</td>
<td>495</td>
<td>425</td>
<td>494</td>
<td></td>
<td></td>
</tr>
<tr>
<td>523.xalancbmk_r</td>
<td>160</td>
<td>122</td>
<td>1390</td>
<td>121</td>
<td>1390</td>
<td></td>
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<tr>
<td>525.x264_r</td>
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<td>207</td>
<td>1350</td>
<td>207</td>
<td>1350</td>
<td></td>
<td></td>
</tr>
<tr>
<td>531.deepsjeng_r</td>
<td>160</td>
<td>371</td>
<td>494</td>
<td>371</td>
<td>494</td>
<td></td>
<td></td>
</tr>
<tr>
<td>541.leela_r</td>
<td>160</td>
<td>571</td>
<td>464</td>
<td>583</td>
<td>455</td>
<td></td>
<td></td>
</tr>
<tr>
<td>548.exchange2_r</td>
<td>160</td>
<td>298</td>
<td>1410</td>
<td>297</td>
<td>1410</td>
<td></td>
<td></td>
</tr>
<tr>
<td>557.xz_r</td>
<td>160</td>
<td>496</td>
<td>348</td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

**SPECrate®2017_int_base = 717**

**SPECrate®2017_int_peak = 740**

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

**Compiler Notes**

SPEC has ruled that the compiler used for this result was performing a compilation that specifically improves the performance of the 523.xalancbmk_r / 623.xalancbmk_s benchmarks using a priori knowledge of the SPEC code and dataset to perform a transformation that has narrow applicability.

In order to encourage optimizations that have wide applicability (see rule 1.4 https://www.spec.org/cpu2017/Docs/runrules.html#rule_1.4), SPEC will no longer publish results using this optimization.

This result is left in the SPEC results database for historical reference.

**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-ic2023/lib/intel64:/home/spec2017-ic2023/lib/ia32:/home/spec2017-ic2023/je5.0.1-32"
MALLOC_CONF = "retain:true"
```

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### General Notes

Binaries compiled on a system with 2x Intel Xeon Platinum 8280M CPU + 384GB RAM

Transparent Huge Pages enabled by default

Prior to runcpu invocation

Filesystem page cache synced and cleared with:

```bash
sync; echo 3>    /proc/sys/vm/drop_caches
```

runcpu command invoked through numactl i.e.:

```bash
numactl --interleave=all runcpu <etc>
```

NR: 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.


### Platform Notes

BIOS configuration:

Performance Profile Set to Performance

SNC Set to Enable SNC4 (4-clusters)

Sysinfo program /home/spec2017-ic2023/bin/sysinfo

Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197

running on localhost.localdomain Sun Jun 25 03:02:11 2023

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

<table>
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<tr>
<th>Table of contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. uname -a</td>
</tr>
<tr>
<td>2. w</td>
</tr>
<tr>
<td>3. Username</td>
</tr>
<tr>
<td>4. ulimit -a</td>
</tr>
<tr>
<td>5. sysinfo process ancestry</td>
</tr>
<tr>
<td>6. /proc/cpuinfo</td>
</tr>
<tr>
<td>7. lscpu</td>
</tr>
<tr>
<td>8. numacl --hardware</td>
</tr>
<tr>
<td>9. /proc/meminfo</td>
</tr>
<tr>
<td>10. who -r</td>
</tr>
<tr>
<td>11. Systemd service manager version: systemd 250 (250-6.e19_0)</td>
</tr>
<tr>
<td>12. Failed units, from systemctl list-units --state=failed</td>
</tr>
<tr>
<td>13. Services, from systemctl list-unit-files</td>
</tr>
<tr>
<td>14. Linux kernel boot-time arguments, from /proc/cmdline</td>
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<tr>
<td>15. cpupower frequency-info</td>
</tr>
<tr>
<td>16. tuned-adm active</td>
</tr>
<tr>
<td>17. sysctl1</td>
</tr>
<tr>
<td>18. /sys/kernel/mm/transparent_hugepage</td>
</tr>
<tr>
<td>19. /sys/kernel/mm/transparent_hugepage/khugepaged</td>
</tr>
<tr>
<td>20. OS release</td>
</tr>
<tr>
<td>21. Disk information</td>
</tr>
<tr>
<td>22. /sys/devices/virtual/dmi/id</td>
</tr>
<tr>
<td>23. dmidecode</td>
</tr>
<tr>
<td>24. BIOS</td>
</tr>
</tbody>
</table>

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Platform Notes (Continued)

1. uname -a
   Linux localhost.localdomain 5.14.0-70.13.1.el9_0.x86_64 #1 SMP PREEMPT Thu Apr 14 12:42:38 EDT 2022 x86_64 x86_64 GNU/Linux

2. w
   03:02:11 up 44 min, 1 user, load average: 0.00, 0.00, 0.00
   USER TTY LOGIND IDLE JCPU PCPU WHAT
   root tty1 03:00 1:07 1.36s 0.07s -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) 2060107
   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) 81200
   real-time priority (-r) 0
   stack size (kbytes, -s) unlimited
   cpu time (seconds, -t) unlimited
   max user processes (-u) 2060107
   virtual memory (kbytes, -v) unlimited
   file locks (-x) unlimited

5. sysinfo process ancestry
   /usr/lib/systemd/systemd --switched-root --system --deserialize 18
   login -- root
   -bash
   runcpu --define default-platform-flags --copies 160 --ic2023.0-lin-sapphirerapids-rate-20221201.cfg
     --define smt-on --define cores=80 --define physicalfirst --define invoke_with_interleave --define drop_caches --tune base,peak --iterations 2 -o all intrate
   runcpu --define default-platform-flags --copies 160 --configfile
     ic2023.0-lin-sapphirerapids-rate-20221201.cfg --define smt-on --define cores=80 --define physicalfirst
     --define invoke_with_interleave --define drop_caches --tune base,peak --iterations 2 --output_format all
     --nopower --runmode rate --tune base,peak --size reformat intrate --nopreev --note-preev --logfile
   $SPEC/tmp/CPU2017.063/templogs/preenv.intrate.063.0.log --lognum 063.0 --from_runcpu 2
   specperl $SPEC/bin/sysinfo
   $SPEC = /home/spec2017-ic2023

6. /proc/cpuinfo
   model name : Intel(R) Xeon(R) Platinum 8460Y+
   vendor_id : GenuineIntel
   cpu family : 6
   model : 143
   stepping : 8
   microcode : 0x2b000111

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Platform Notes (Continued)

bugs            : spectre_v1 spectre_v2 spec_store_bypass swapgs
cpu cores       : 40
siblings        : 80
2 physical ids (chips)
160 processors (hardware threads)
physical id 0: core ids 0-39
physical id 1: core ids 0-39
physical id 0: apic ids 0-79
physical id 1: apic ids 128-207

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: 46 bits physical, 57 bits virtual
Byte Order: Little Endian
CPU(s): 160
On-line CPU(s) list: 0-159
Vendor ID: GenuineIntel
BIOS Vendor ID: Intel(R) Corporation
Model name: Intel(R) Xeon(R) Platinum 8450Y+ 6488
 BIOS Model name: Intel(R) Xeon(R) Platinum 8450Y+ 6488
CPU family: 6
Model: 143
Thread(s) per core: 2
Core(s) per socket: 40
Socket(s): 2
Stepping: 8
BogoMIPS: 4000.00

Flags:
  fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmovpat pse36
  clflush dts acpi mmx fxsr sse sse2 ss ht tm pbe syscall nx pdpe1gb rdtsdp
  lm constant_tsc art arch_perfmon pebs bts rep_good nopl xtopology
  nonstop_tsc cpuid aperfmperf tsc_known_freq pni pclmulqdq dtes64 ksldt
  clflushopt dts acpi mmx fxsr sse sse2 ss ht tm pbe syscall nx pdpe1gb
  rdtsdp mp cmov cmovpat pse36 clflush dts acpi mmx fxsr sse sse2 ss ht
  tm pbe syscall nx pdpe1gb rdtsdp mp cmov cmovpat pse36
tm

Virtualization: VT-x
L1d cache: 3.8 MiB (80 instances)
L1i cache: 2.5 MiB (80 instances)
L2 cache: 160 MiB (80 instances)
L3 cache: 210 MiB (2 instances)
NUMA node(s): 8
NUMA node0 CPU(s): 0-9,80-89
NUMA node1 CPU(s): 10-19,90-99
NUMA node2 CPU(s): 20-29,100-109
NUMA node3 CPU(s): 30-39,110-119

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Platform Notes (Continued)

NUMA node4 CPU(s): 40-49,120-129
NUMA node5 CPU(s): 50-59,130-139
NUMA node6 CPU(s): 60-69,140-149
NUMA node7 CPU(s): 70-79,150-159
Vulnerability Itlb multihit: Not affected
Vulnerability Lttf: 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/swapgs barriers and __user pointer sanitization
Vulnerability Spectre v2: Mitigation; Enhanced IBRS, IBPB conditional, RSB filling
Vulnerability Srbds: Not affected
Vulnerability Tax async abort: Not affected

From lsmpu --cache:

<table>
<thead>
<tr>
<th>NAME</th>
<th>ONE-SIZE</th>
<th>ALL-SIZE</th>
<th>WAYS</th>
<th>LEVEL</th>
<th>SETS</th>
<th>PHY-LINE</th>
<th>COHERENCY-SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>L1d</td>
<td>48K</td>
<td>3.8M</td>
<td>12</td>
<td>Data</td>
<td>1</td>
<td>64</td>
<td>1</td>
</tr>
<tr>
<td>L1i</td>
<td>32K</td>
<td>2.5M</td>
<td>8</td>
<td>Instruction</td>
<td>1</td>
<td>64</td>
<td>1</td>
</tr>
<tr>
<td>L2</td>
<td>2M</td>
<td>160M</td>
<td>16</td>
<td>Unified</td>
<td>2</td>
<td>2048</td>
<td>1</td>
</tr>
<tr>
<td>L3</td>
<td>105M</td>
<td>210M</td>
<td>15</td>
<td>Unified</td>
<td>3</td>
<td>114688</td>
<td>1</td>
</tr>
</tbody>
</table>

8. numactl --hardware
NOTE: a numactl 'node' might or might not correspond to a physical chip.
available: 8 nodes (0-7)
node 0 cpus: 0-9,80-89
node 0 size: 63569 MB
node 0 free: 62753 MB
node 1 cpus: 10-19,90-99
node 1 size: 64507 MB
node 1 free: 64202 MB
node 2 cpus: 20-29,100-109
node 2 size: 64471 MB
node 2 free: 64110 MB
node 3 cpus: 30-39,110-119
node 3 size: 64507 MB
node 3 free: 61349 MB
node 4 cpus: 40-49,120-129
node 4 size: 64507 MB
node 4 free: 64218 MB
node 5 cpus: 50-59,130-139
node 5 size: 64507 MB
node 5 free: 64241 MB
node 6 cpus: 60-69,140-149
node 6 size: 64507 MB
node 6 free: 60979 MB
node 7 cpus: 70-79,150-159
node 7 size: 64487 MB
node 7 free: 64208 MB
node distances:
node 0 1 2 3 4 5 6 7
0: 10 12 12 12 21 21 21
1: 12 10 12 12 21 21 21
2: 12 12 10 12 21 21 21
3: 12 12 12 10 21 21 21
4: 21 21 21 21 10 12 12
5: 21 21 21 21 12 12 12
6: 21 21 21 21 12 12 12
7: 21 21 21 21 12 12 12

(Continued on next page)
Platform Notes (Continued)

9. /proc/meminfo
   MemTotal: 527428144 kB

10. who -r
    run-level 3 Jun 25 02:18

11. Systemd service manager version: systemd 250 (250-6.e19_0)
    Default Target  Status
    multi-user  degraded

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

13. Services, from systemctl list-unit-files
    STATE UNIT FILES
    enabled NetworkManager NetworkManager-dispatcher NetworkManager-wait-online auditd chronyd crond
dbus-broker firewalld getty@ irqbalance lvm2-monitor mdmonitor microcode
nis-domainname rhsmcertd rsyslog selinux-autorelabel-mark sep5 ssd sdss sysstat
systemd-network-generator tuned udisks2 upower
    enabled-runtime systemd-remount-fs
    disabled arp-ethers blk-availability canberra-system-bootup canberra-system-shutdown
canberra-system-systemd-resume chrony-systemd-resume wait console-getty cpupower debug-shell kvm_stat
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-sysfs
direct ssd-ufs sdss-efs ssd-nss ssd-pac ssd-pam ssd-ssh ssd-ssd

14. 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

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

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Platform Notes (Continued)

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.extrfrag_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 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
-------------------------------------------------------------------
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-ic2023
Filesystem            Type  Size  Used Avail Use% Mounted on
/dev/mapper/rhel-home xfs   1.7T  288G  1.4T  17% /home
-------------------------------------------------------------------
22. /sys/devices/virtual/dmi/id
Vendor:         XFUSION
Product:        5288 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.

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

**xFusion**

FusionServer 5288 V7 (Intel Xeon Platinum 8460Y+)

**SPECRate®2017_int_base** = 717

**SPECRate®2017_int_peak** = 740

---

**Platform Notes (Continued)**

Memory:
16x Samsung M321R4GA3BB6-CQKDG 32 GB 2 rank 4800

---

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

<table>
<thead>
<tr>
<th>BIOS Vendor</th>
<th>BIOS Version</th>
<th>BIOS Date</th>
<th>BIOS Revision</th>
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<tr>
<td>XFUSION</td>
<td>2.00.55</td>
<td>03/07/2023</td>
<td>0.55</td>
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**Compiler Version Notes**

C

<table>
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<tr>
<th>502.gcc_r(peak)</th>
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</table>

Intel(R) oneAPI DPC++/C++ Compiler for applications running on IA-32, Version 2023.0.0 Build 20221201
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.

---

C

| 500.perlbench_r(base, peak) 502.gcc_r(base) 505.mcf_r(base, peak) 525.x264_r(base, peak) 557.xz_r(base, peak) |

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

C

| 502.gcc_r(peak) |

Intel(R) oneAPI DPC++/C++ Compiler for applications running on IA-32, Version 2023.0.0 Build 20221201
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.

---

C

| 500.perlbench_r(base, peak) 502.gcc_r(base) 505.mcf_r(base, peak) 525.x264_r(base, peak) 557.xz_r(base, peak) |

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

C++

| 520.omnetpp_r(base, peak) 523.xalancbmk_r(base, peak) 531.deepsjeng_r(base, peak) 541.leela_r(base, peak) |

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

Fortran

| 548.exchange2_r(base, peak) |

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---
SPEC CPU®2017 Integer Rate Result

xFusion
FusionServer 5288 V7 (Intel Xeon Platinum 8460Y+)

SPECrate®2017_int_base = 717
SPECrate®2017_int_peak = 740

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

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

Base Compiler Invocation

C benchmarks:
icx

C++ benchmarks:
icpx

Fortran benchmarks:
ifx

Base Portability Flags

500.perlbench_r: -DSPEC_LP64 -DSPEC_LINUX_X64
502.gcc_r: -DSPEC_LP64
505.mcf_r: -DSPEC_LP64
520.omnetpp_r: -DSPEC_LP64
523.xalancbmk_r: -DSPEC_LP64 -DSPEC_LINUX
525.x264_r: -DSPEC_LP64
531.deepsjeng_r: -DSPEC_LP64
541.leela_r: -DSPEC_LP64
548.exchange2_r: -DSPEC_LP64
557.xz_r: -DSPEC_LP64

Base Optimization Flags

C benchmarks:
-w -std=c11 -m64 -Wl,-z,muldefs -xsapphirerapids -O3 -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-L/usr/local/intel/compiler/2023.0.0/linux/compiler/lib/intel64_lin
-lqkmalloc

C++ benchmarks:
-w -std=c++14 -m64 -Wl,-z,muldefs -xsapphirerapids -O3 -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-L/usr/local/intel/compiler/2023.0.0/linux/compiler/lib/intel64_lin
-lqkmalloc

Fortran benchmarks:
-w -m64 -Wl,-z,muldefs -xsapphirerapids -O3 -ffast-math -flto
-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-nostandard-realloc-lhs -align array32byte -auto
-L/usr/local/intel/compiler/2023.0.0/linux/compiler/lib/intel64_lin
-lqkmalloc
## SPEC CPU®2017 Integer Rate Result

**xFusion**

**FusionServer 5288 V7 (Intel Xeon Platinum 8460Y+)**

<table>
<thead>
<tr>
<th>SPECrate®2017_int_base = 717</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECrate®2017_int_peak = 740</td>
</tr>
</tbody>
</table>

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

### Peak Compiler Invocation

#### C benchmarks:
- icx

#### C++ benchmarks:
- icpx

#### Fortran benchmarks:
- ifx

### Peak Portability Flags

- C benchmarks:
  - 500.perlbench_r: -DSPEC_LP64 -DSPEC_LINUX_X64
  - 502.gcc_r: -D_FILE_OFFSET_BITS=64
  - 505.mcf_r: -DSPEC_LP64
  - 520.omnetpp_r: -DSPEC_LP64
  - 523.xalancbmk_r: -DSPEC_LP64 -DSPEC_LINUX
  - 525.x264_r: -DSPEC_LP64
  - 531.deepsjeng_r: -DSPEC_LP64
  - 541.leela_r: -DSPEC_LP64
  - 548.exchange2_r: -DSPEC_LP64
  - 557.xz_r: -DSPEC_LP64

- C++ benchmarks:
  - 500.perlbench_r: -DSPEC_LP64 -DSPEC_LINUX_X64
  - 502.gcc_r: -DSPEC_LP64

### Peak Optimization Flags

#### C benchmarks:
- 500.perlbench_r: -w -std=c11 -m64 -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 -gopt-mem-layout-trans=4 -fno-strict-overflow -L/usr/local/intel/compiler/2023.0.0/linux/compiler/lib/intel64_lin -ljemalloc


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

xFusion

FusionServer 5288 V7 (Intel Xeon Platinum 8460Y+)

<table>
<thead>
<tr>
<th>CPU2017 License: 6488</th>
<th>Test Date: Jun-2023</th>
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<tr>
<td>Test Sponsor: xFusion</td>
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<td>Software Availability: Dec-2022</td>
</tr>
</tbody>
</table>

SPECrated®2017_int_base = 717
SPECrated®2017_int_peak = 740

Peak Optimization Flags (Continued)

05.05.mcf_r: basepeak = yes

525.0264_r: -w -std=c11 -m64 -Wl,-z,muldefs -xsapphirerapids -Ofast
-ffast-math -fto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -fno-alias
-L/usr/local/intel/compiler/2023.0.0/linux/compiler/lib/intel64_lin
-lqkmalloc

557.xz_r: basepeak = yes

C++ benchmarks:

520.020.omnetpp_r: basepeak = yes
523.xalancbmk_r: basepeak = yes
531.deepsjeng_r: basepeak = yes
541.leela_r: basepeak = yes

Fortran benchmarks:

548.exchange2_r: basepeak = yes

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

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