



# SPEC CPU®2017 Integer Rate Result

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## xFusion

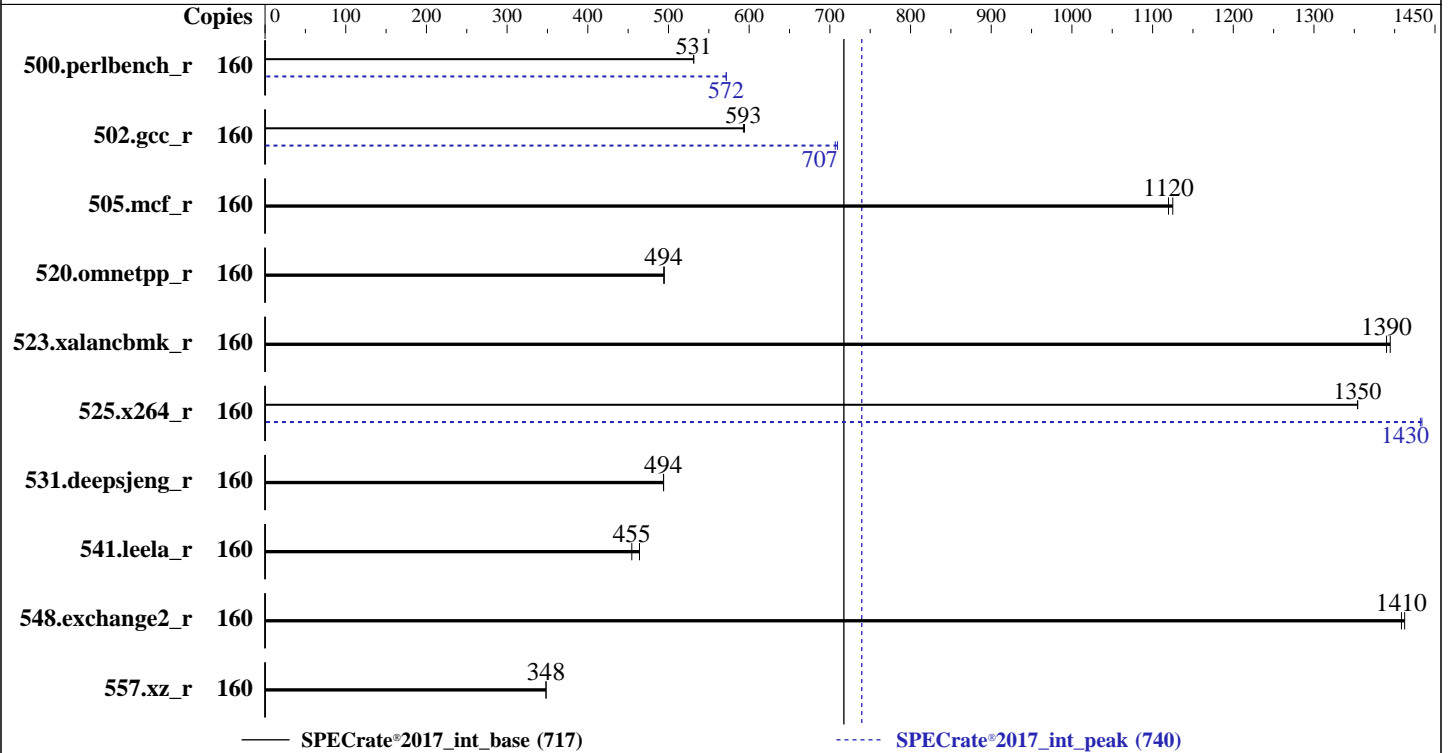
SPECrate®2017\_int\_base = 717

FusionServer 5288 V7 (Intel Xeon Platinum 8460Y+)

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



### 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



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## Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
500.perlbench_r	160	479	531	<b><u>479</u></b>	<b><u>531</u></b>			160	<b><u>446</u></b>	<b><u>572</u></b>	446	572		
502.gcc_r	160	381	594	<b><u>382</u></b>	<b><u>593</u></b>			160	319	709	<b><u>321</u></b>	<b><u>707</u></b>		
505.mcf_r	160	230	1130	<b><u>231</u></b>	<b><u>1120</u></b>			160	230	1130	<b><u>231</u></b>	<b><u>1120</u></b>		
520.omnetpp_r	160	424	495	<b><u>425</u></b>	<b><u>494</u></b>			160	424	495	<b><u>425</u></b>	<b><u>494</u></b>		
523.xalancbmk_r	160	<b><u>122</u></b>	<b><u>1390</u></b>	121	1390			160	<b><u>122</u></b>	<b><u>1390</u></b>	121	1390		
525.x264_r	160	<b><u>207</u></b>	<b><u>1350</u></b>	207	1350			160	<b><u>196</u></b>	<b><u>1430</u></b>	195	1430		
531.deepsjeng_r	160	371	494	<b><u>371</u></b>	<b><u>494</u></b>			160	371	494	<b><u>371</u></b>	<b><u>494</u></b>		
541.leela_r	160	571	464	<b><u>583</u></b>	<b><u>455</u></b>			160	571	464	<b><u>583</u></b>	<b><u>455</u></b>		
548.exchange2_r	160	<b><u>298</u></b>	<b><u>1410</u></b>	297	1410			160	<b><u>298</u></b>	<b><u>1410</u></b>	297	1410		
557.xz_r	160	<b><u>496</u></b>	<b><u>348</u></b>	496	348			160	<b><u>496</u></b>	<b><u>348</u></b>	496	348		

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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](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 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.  
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  
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 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.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
- 

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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 x86\_64 GNU/Linux

-----  
2. `w`  
03:02:11 up 44 min, 1 user, load average: 0.00, 0.00, 0.00  
USER TTY LOGIN@ 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) 819200  
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  
-bash  
runcpu --define default-platform-flags --copies 160 -c 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 refrate intrate --nopreenv --note-preenv --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 swappg
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: apicids 0-79
physical id 1: apicids 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 8460Y+
BIOS Model name:      Intel(R) Xeon(R) Platinum 8460Y+
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 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 invpcid_single
                      intel_ppin cdp_l2 ssbd 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 smap avx512ifma clflushopt
                      clwb intel_pt avx512cd sha_ni avx512bw avx512vl xsaveopt xsavec xgetbv1
                      xsaves cqm_llc cqm_occup_llc cqm_mbm_total cqm_mbm_local 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_vpopcntdq la57 rdpid bus_lock_detect cldemote movdiri movdir64b
                      enqcmd fsrm md_clear serialize tsxldtrk pconfig arch_lbr avx512_fp16
                      amx_tile flush_l1d arch_capabilities

Virtualization:        VT-x
L1d cache:             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 L1tf:         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 Tsx async abort: Not affected

```

From lscpu --cache:

NAME	ONE-SIZE	ALL-SIZE	WAYS	TYPE	LEVEL	SETS	PHY-LINE	COHERENCY-SIZE
L1d	48K	3.8M	12	Data	1	64	1	64
L1i	32K	2.5M	8	Instruction	1	64	1	64
L2	2M	160M	16	Unified	2	2048	1	64
L3	105M	210M	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: 0-9,80-89
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 21
1:  12 10 12 12 21 21 21 21
2:  12 12 10 12 21 21 21 21
3:  12 12 12 10 21 21 21 21
4:  21 21 21 21 10 12 12 12
5:  21 21 21 21 12 10 12 12
6:  21 21 21 21 12 12 10 12
7:  21 21 21 21 12 12 12 10

```

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### 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.el9\_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 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 kdump lvm2-monitor mdmonitor microcode  
nis-domainname rhsmcertd rsyslog selinux-autorelabel-mark sep5 sshd sssd 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-shutdown-reboot chrony-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-sysext  
indirect sssd-autofs sssd-kcm sssd-nss sssd-pac sssd-pam sssd-ssh sssd-sudo

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

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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.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 defer+madvice [madvice] never
enabled         [always] madvice 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/dmideid
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.

```

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### Platform Notes (Continued)

Memory:  
16x Samsung M321R4GA3BB6-CQKDG 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 | 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  
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.

-----  
C | 502.gcc\_r(peak)

Intel(R) oneAPI DPC++/C++ Compiler for applications running on IA-32, Version 2023.0.0 Build 20221201  
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-----  
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)

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-----  
Fortran | 548.exchange2\_r(base, peak)

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# SPEC CPU®2017 Integer Rate Result

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**xFusion**

SPECrate®2017\_int\_base = 717

FusionServer 5288 V7 (Intel Xeon Platinum 8460Y+)

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

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## xFusion

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

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

## Peak Compiler Invocation

C benchmarks:

icx

C++ benchmarks:

icpx

Fortran benchmarks:

ifx

## Peak Portability Flags

```
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
```

## Peak Optimization Flags

C benchmarks:

```
500.perlbench_r: -w -std=c11 -m64 -Wl,-z,muldefs
-fprofile-generate(pass 1)
-fprofile-use=default.profddata(pass 2) -xCORE-AVX2(pass 1)
-flto -Ofast -xCORE-AVX512 -ffast-math -mfpmath=sse
-funroll-loops -qopt-mem-layout-trans=4
-fno-strict-overflow
-L/usr/local/intel/compiler/2023.0.0/linux/compiler/lib/intel64_lin
-lqkmalloc

502.gcc_r: -m32
-L/usr/local/intel/compiler/2023.0.0/linux/compiler/lib/ia32_lin
-std=gnu89 -Wl,-z,muldefs -fprofile-generate(pass 1)
-fprofile-use=default.profddata(pass 2) -xCORE-AVX2(pass 1)
-flto -Ofast -xCORE-AVX512 -ffast-math -mfpmath=sse
-funroll-loops -qopt-mem-layout-trans=4
-L/usr/local/jemalloc32-5.0.1/lib -ljemalloc
```

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## xFusion

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

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

## Peak Optimization Flags (Continued)

505.mcf\_r: basepeak = yes

```
525.x264_r: -w -std=c11 -m64 -Wl,-z,muldefs -xsapphirerapids -Ofast
-ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -fno-alias
-L/usr/local/intel/compiler/2023.0.0/linux/compiler/lib/intel64_lin
-lqkmallocc
```

557.xz\_r: basepeak = yes

C++ benchmarks:

520.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>

<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-ic2023-official-linux64.xml>

<http://www.spec.org/cpu2017/flags/xFusion-Platform-Settings-SPR-V1.1-revC.xml>

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