



# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

**ASUSTeK Computer Inc.**  
ASUS RS720-E10-RS12(Z12PP-D32) Server System  
(2.30 GHz, Intel Xeon Platinum 8380)

**SPECrate®2017\_int\_base = 612**  
**SPECrate®2017\_int\_peak = 638**

**CPU2017 License:** 9016

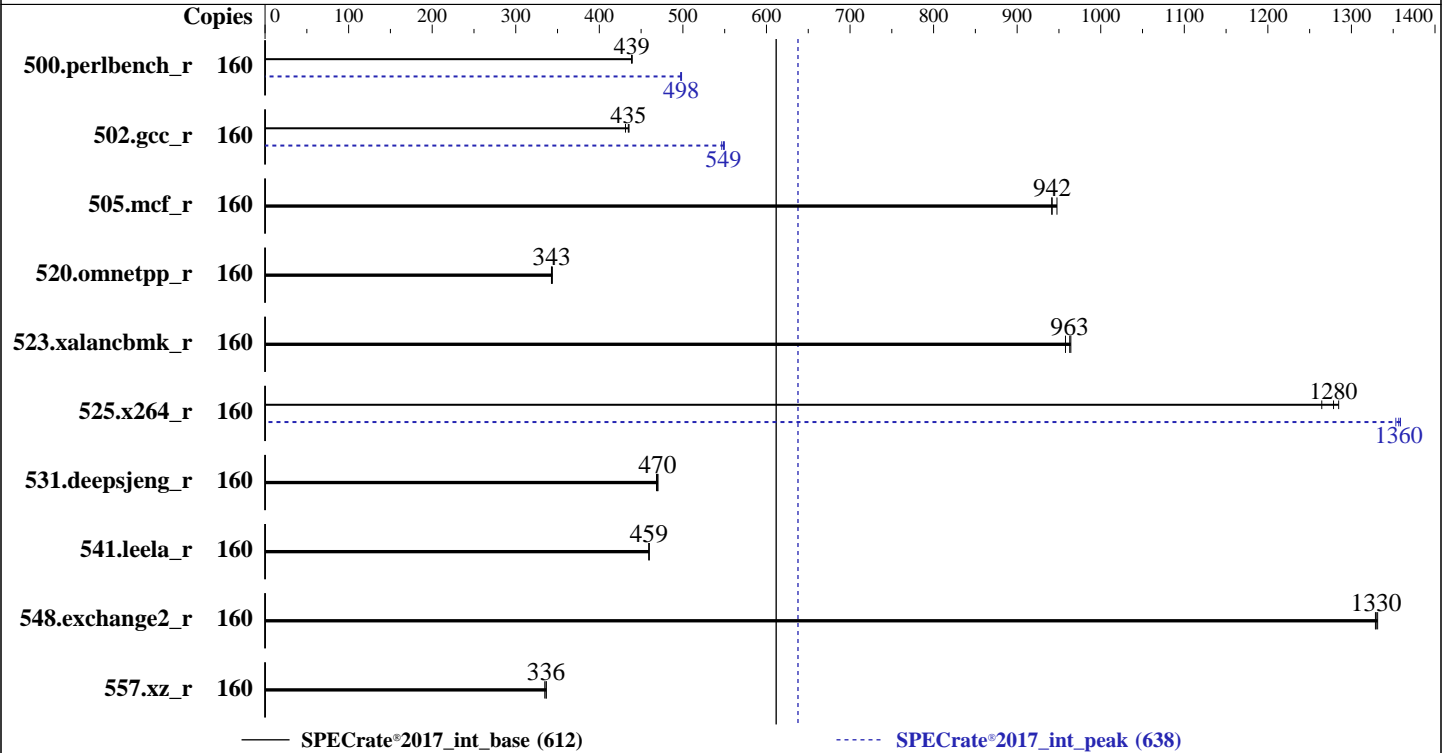
**Test Sponsor:** ASUSTeK Computer Inc.

**Tested by:** ASUSTeK Computer Inc.

**Test Date:** Apr-2023

**Hardware Availability:** Jul-2021

**Software Availability:** Dec-2022



### Hardware

CPU Name: Intel Xeon Platinum 8380  
 Max MHz: 3400  
 Nominal: 2300  
 Enabled: 80 cores, 2 chips, 2 threads/core  
 Orderable: 1, 2 chip(s)  
 Cache L1: 32 KB I + 48 KB D on chip per core  
 L2: 1.25 MB I+D on chip per core  
 L3: 60 MB I+D on chip per chip  
 Other: None  
 Memory: 1 TB (16 x 64 GB 2Rx4 PC4-3200AA-R)  
 Storage: 1 x 240 GB SATA SSD  
 Other: None

### Software

OS: Red Hat Enterprise Linux 8.3 (Ootpa)  
 4.18.0-240.22.1.el8\_3.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 0504 released May-2021  
 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	580	439	<b>580</b>	<b>439</b>	581	439	160	511	498	512	497	<b>512</b>	<b>498</b>
502.gcc_r	160	<b>521</b>	<b>435</b>	520	436	525	431	160	412	550	415	546	<b>413</b>	<b>549</b>
505.mcf_r	160	<b>275</b>	<b>942</b>	273	948	275	941	160	<b>275</b>	<b>942</b>	273	948	275	941
520.omnetpp_r	160	612	343	611	344	<b>612</b>	<b>343</b>	160	612	343	611	344	<b>612</b>	<b>343</b>
523.xalancbmk_r	160	<b>175</b>	<b>963</b>	176	958	175	964	160	<b>175</b>	<b>963</b>	176	958	175	964
525.x264_r	160	218	1280	222	1260	<b>219</b>	<b>1280</b>	160	206	1360	207	1350	<b>207</b>	<b>1360</b>
531.deepsjeng_r	160	<b>390</b>	<b>470</b>	390	470	391	468	160	<b>390</b>	<b>470</b>	390	470	391	468
541.leela_r	160	577	459	576	460	<b>577</b>	<b>459</b>	160	577	459	576	460	<b>577</b>	<b>459</b>
548.exchange2_r	160	315	1330	<b>315</b>	<b>1330</b>	315	1330	160	315	1330	<b>315</b>	<b>1330</b>	315	1330
557.xz_r	160	514	336	516	335	<b>514</b>	<b>336</b>	160	514	336	516	335	<b>514</b>	<b>336</b>

SPECrate®2017\_int\_base = **612**

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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"  
OS set to performance mode via cpupower frequency-set -g performance

## Environment Variables Notes

Environment variables set by runcpu before the start of the run:  
LD\_LIBRARY\_PATH = "/home/cpul19/lib/intel64:/home/cpul19/lib/ia32:/home/cpul19/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:  
VT-d = Disabled  
Patrol Scrub = Disabled  
SNC = Enable SNC2 (2-clusters)  
Engine Boost = Aggressive  
SR-IOV Support = Disabled  
BMC Configuration:  
Fan mode = Full speed mode

Sysinfo program /home/cpull19/bin/sysinfo  
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197  
running on localhost.localdomain Thu Apr 27 08:28:07 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 239 (239-41.el8\_3.2)
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

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## Platform Notes (Continued)

- 21. Kernel self-reported vulnerability status, from /sys/devices/system/cpu/vulnerabilities
- 22. Disk information
- 23. /sys/devices/virtual/dmi/id
- 24. dmidecode
- 25. BIOS

```
-----
1. uname -a
Linux localhost.localdomain 4.18.0-240.22.1.el8_3.x86_64 #1 SMP Thu Mar 25 14:36:04 EDT 2021 x86_64 x86_64
x86_64 GNU/Linux
-----
```

```
-----
2. w
08:28:07 up 3 min, 1 user, load average: 0.79, 1.94, 0.95
USER      TTY      FROM          LOGIN@      IDLE        JCPU        PCPU        WHAT
root      tty1     -              08:26       7.00s      1.21s      0.01s      -bash
-----
```

```
-----
3. Username
From environment variable $USER: root
-----
```

```
-----
4. ulimit -a
core file size          (blocks, -c) 0
data seg size           (kbytes, -d) unlimited
scheduling priority     (-e) 0
file size                (blocks, -f) unlimited
pending signals         (-i) 4125954
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) 4125954
virtual memory          (kbytes, -v) unlimited
file locks              (-x) unlimited
-----
```

```
-----
5. sysinfo process ancestry
/usr/lib/systemd/systemd --switched-root --system --deserialize 17
login -- root
-bash
-bash
runcpu --nobuild --action validate --define default-platform-flags --define numcopies=160 -c
ic2023.0-lin-core-avx512-rate-20221201.cfg --define smt-on --define cores=80 --define physicalfirst
--define invoke_with_interleave --define drop_caches --tune base,peak -o all intrate
runcpu --nobuild --action validate --define default-platform-flags --define numcopies=160 --configfile
ic2023.0-lin-core-avx512-rate-20221201.cfg --define smt-on --define cores=80 --define physicalfirst
--define invoke_with_interleave --define drop_caches --tune base,peak --output_format all --nopower
--runmode rate --tune base:peak --size refrate intrate --nopreenv --note-preenv --logfile
$SPEC/tmp/CPU2017.023/templogs/preenv.intrate.023.0.log --lognum 023.0 --from_runcpu 2
specperl $SPEC/bin/sysinfo
$SPEC = /home/cpull19
-----
```

```
-----
6. /proc/cpuinfo
-----
```

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## Platform Notes (Continued)

```
model name      : Intel(R) Xeon(R) Platinum 8380 CPU @ 2.30GHz
vendor_id       : GenuineIntel
cpu family      : 6
model           : 106
stepping        : 6
microcode       : 0xd000280
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:  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 2.32.1:

```
Architecture:      x86_64
CPU op-mode(s):    32-bit, 64-bit
Byte Order:        Little Endian
CPU(s):            160
On-line CPU(s) list: 0-159
Thread(s) per core: 2
Core(s) per socket: 40
Socket(s):         2
NUMA node(s):     4
Vendor ID:        GenuineIntel
CPU family:        6
Model:            106
Model name:       Intel(R) Xeon(R) Platinum 8380 CPU @ 2.30GHz
Stepping:         6
CPU MHz:          3153.167
CPU max MHz:      3400.0000
CPU min MHz:      800.0000
BogoMIPS:         4600.00
Virtualization:   VT-x
L1d cache:        48K
L1i cache:        32K
L2 cache:         1280K
L3 cache:         61440K
NUMA node0 CPU(s): 0-19,80-99
NUMA node1 CPU(s): 20-39,100-119
NUMA node2 CPU(s): 40-59,120-139
NUMA node3 CPU(s): 60-79,140-159
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 pni
pclmulqdq dtes64 monitor 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 invpcid_single intel_ppin ssbd mba ibrs ibpb
stibp ibrs_enhanced tpr_shadow vmmi flexpriority ept vpid ept_ad fsgsbase tsc_adjust
bmi1 hle 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
wbnoinvd dtherm ida arat pln pts hwp hwp_act_window hwp_epp hwp_pkg_req avx512vbmi
```

(Continued on next page)



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## Platform Notes (Continued)

umip pku ospke avx512\_vbmi2 gfni vaes vpclmulqdq avx512\_vnni avx512\_bitalg tme  
avx512\_vpopcntdq la57 rdpid md\_clear pconfig flush\_lld arch\_capabilities

### 8. numactl --hardware

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

```
available: 4 nodes (0-3)
node 0 cpus: 0-19,80-99
node 0 size: 250229 MB
node 0 free: 256424 MB
node 1 cpus: 20-39,100-119
node 1 size: 250276 MB
node 1 free: 257499 MB
node 2 cpus: 40-59,120-139
node 2 size: 250600 MB
node 2 free: 257679 MB
node 3 cpus: 60-79,140-159
node 3 size: 250858 MB
node 3 free: 257691 MB
node distances:
node  0  1  2  3
 0:  10  11  20  20
 1:  11  10  20  20
 2:  20  20  10  11
 3:  20  20  11  10
```

### 9. /proc/meminfo

```
MemTotal:      1056452824 kB
```

### 10. who -r

```
run-level 3 Apr 27 08:25
```

### 11. Systemd service manager version: systemd 239 (239-41.el8\_3.2)

```
Default Target Status
multi-user      degraded
```

### 12. Failed units, from systemctl list-units --state=failed

```
UNIT          LOAD    ACTIVE SUB    DESCRIPTION
* kdump.service loaded failed failed Crash recovery kernel arming
```

### 13. Services, from systemctl list-unit-files

```
STATE UNIT FILES
enabled NetworkManager NetworkManager-dispatcher NetworkManager-wait-online abrt-journal-core abrt-oops
abrt-vmcore abrt-xorg abrtd atd auditd autovt@ chronyd crond firewallld getty@ import-state
irqbalance iscsi iscsi-onboot kdump libstoragemgmt lm_sensors loadmodules lvm2-monitor mcelog
mdmonitor microcode multipathd pmcd pmie pmlogger rhsmcertd rngd rsyslog selinux-autorelabel-mark
smartd sshd sssd syslog sysstat timedatex tuned udisks2 vdo vgauthd vmtoolsd
disabled abrt-ccpp abrt-pstoreoops arp-ethers blk-availability chrony-wait console-getty cpupower dbxtool
debug-shell ebttables fancontrol grafana-server iprdump iprint iprupdate ipsec iscsid iscsiui0
kpatch ledmon nftables nis-domainname oddjobd pmfind pmie_check pmlogger_check
pmlogger_daily_report pmlogger_daily_report-poll pmmgr pmproxy podman-auto-update postfix
powertop psacct qemu-guest-agent ras-mc-ctl rasdaemon rdisc rdma rhnsd rhsm rhsm-facts
rngd-wake-threshold rrdcached saslauthd serial-getty@ snmpd snmptrapd sshd-keygen@
systemd-resolved tcsd tog-pegasus trace-cmd
indirect sssd-autofs sssd-kcm sssd-nss sssd-pac sssd-pam sssd-ssh sssd-sudo
```

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## Platform Notes (Continued)

masked systemd-timedated

```

-----
14. Linux kernel boot-time arguments, from /proc/cmdline
BOOT_IMAGE=(hd0,gpt2)/vmlinuz-4.18.0-240.22.1.el8_3.x86_64
root=/dev/mapper/rhel-root
ro
resume=/dev/mapper/rhel-swap
rd.lvm.lv=rhel/root
rd.lvm.lv=rhel/swap
rhgb
quiet

```

```

-----
15. cpupower frequency-info
analyzing CPU 0:
  current policy: frequency should be within 800 MHz and 3.40 GHz.
                  The governor "performance" may decide which speed to use
                  within this range.

  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.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_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_swap          64

```

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## Platform Notes (Continued)

```
pages_to_scan          4096
scan_sleep_millisecs   10000
```

```
-----
20. OS release
From /etc/*-release /etc/*-version
os-release      Red Hat Enterprise Linux 8.3 (Ootpa)
redhat-release  Red Hat Enterprise Linux release 8.3 (Ootpa)
system-release  Red Hat Enterprise Linux release 8.3 (Ootpa)
-----
```

```
-----
21. Kernel self-reported vulnerability status, from /sys/devices/system/cpu/vulnerabilities
itlb_multihit      Not affected
lltf                Not affected
mds                 Not affected
meltdown           Not affected
spec_store_bypass  Mitigation: Speculative Store Bypass disabled via prctl and seccomp
spectre_v1          Mitigation: usercopy/swapgs barriers and __user pointer sanitization
spectre_v2          Mitigation: Enhanced IBRS, IBPB: conditional, RSB filling
srbds               Not affected
tsx_async_abort     Not affected
For more information, see the Linux documentation on hardware vulnerabilities, for example
  https://www.kernel.org/doc/html/latest/admin-guide/hw-vuln/index.html
-----
```

```
-----
22. Disk information
SPEC is set to: /home/cpull9
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/mapper/rhel-home xfs   148G   78G   71G   53% /home
-----
```

```
-----
23. /sys/devices/virtual/dmi/id
Vendor:          ASUSTeK COMPUTER INC.
Product:         RS720-E10-RS12
Product Family:  Server
Serial:          012345678901
-----
```

```
-----
24. dmidecode
Additional information from dmidecode 3.2 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:
  16x NO DIMM NO DIMM
  16x Samsung M393A8G40AB2-CWE 64 GB 2 rank 3200
-----
```

```
-----
25. BIOS
(This section combines info from /sys/devices and dmidecode.)
BIOS Vendor:     American Megatrends Inc.
BIOS Version:    0504
BIOS Date:       05/26/2021
BIOS Revision:   5.4
-----
```





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## 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.xalanbmk\_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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=====

## Base Compiler Invocation

C benchmarks:

icx

C++ benchmarks:

icpx

Fortran benchmarks:

ifx



# SPEC CPU®2017 Integer Rate Result

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**ASUSTeK Computer Inc.**  
ASUS RS720-E10-RS12(Z12PP-D32) Server System  
(2.30 GHz, Intel Xeon Platinum 8380)

SPECrate®2017\_int\_base = 612

SPECrate®2017\_int\_peak = 638

**CPU2017 License:** 9016  
**Test Sponsor:** ASUSTeK Computer Inc.  
**Tested by:** ASUSTeK Computer Inc.

**Test Date:** Apr-2023  
**Hardware Availability:** Jul-2021  
**Software Availability:** Dec-2022

## 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 -xCORE-AVX512 -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 -xCORE-AVX512 -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 -xCORE-AVX512 -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

## Peak Compiler Invocation

### C benchmarks:

icx

### C++ benchmarks:

icpx

### Fortran benchmarks:

ifx



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**Software Availability:** Dec-2022

## 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  
-lqkmallo

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

505.mcf\_r: basepeak = yes

525.x264\_r: -w -std=c11 -m64 -Wl,-z,muldefs -xCORE-AVX512 -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  
-lqkmallo

557.xz\_r: basepeak = yes

C++ benchmarks:

(Continued on next page)



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**Tested by:** ASUSTeK Computer Inc.

**Test Date:** Apr-2023  
**Hardware Availability:** Jul-2021  
**Software Availability:** Dec-2022

## Peak Optimization Flags (Continued)

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/ASUSTekPlatform-Settings-z12-V1.2.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/ASUSTekPlatform-Settings-z12-V1.2.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](mailto:info@spec.org).

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